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Mid-Continent Gasoline Specifications Are Undergoing Rapid Changes

By J. C. Chatfield
N. P. N. Staff Writer

TULSA, Dec. 20

CHANGES in the specifications of gasoline offered for sale by refiners in the Mid-Continent field have been taking place at a more rapid rate during December than in any previous month in the history of the industry. From being one of the minor products of the refinery, 60-62 gravity gasoline has become one of the most important and bids fair to become the most important commodity produced in the field in point of volume marketed.

The demand for 60-62 gravity gasoline from jobbers in certain areas has been growing from month to month since early fall but has jumped amazingly since the first of December. This has been brought about partly by the colder weather in the consuming territory but the greatest cause has been the influx of special gasolines in the middle west which are being pushed with large advertising campaigns by refiners who operate numerous stations of their own. These special gasolines pushed by vigorous sales campaigns, of course, have come as a result of the success achieved by The Texas Co. in building up business with its "new and better gasoline."

Percentage of High Test Increases

AN example of the jump in shipments of 60-62 is seen in the experience of one large refiner operating in Group 3 who sold approximately 800,000 gallons in November and up to Dec. 15 had booked orders for 1,800,000 gallons for December delivery. The 60-62 gasoline sold in November represented 7.6 percent of the total gasoline production of the company while the sales for the first half of December represented 17.1 percent of the probable production for the full month or over 34 percent of the total gasoline production for the first 15 days.

Another important refiner in Oklahoma reports that approximately 70 percent of his gasoline shipments for the first half of December have been 60 gravity or higher. This refiner is receiving requests from his jobber customers to build up the gravity of their motor fuel to as high as 65 degrees A.P.I.

The two instances cited above are not extraordinary. They represent an average condition in the field. It would be difficult to find as many as a half dozen refiners in the Mid-Continent who are not making large quantities of high gravity motor fuels.

Not All of Low End Point

IT should not be assumed that all of this new 60-62 gasoline meets the boiling point range of the conventional 60-62 of the past with a final boiling point of 400 degrees F. or below. As a matter of fact most of the new gasolines are sold on the basis of an end point of 437 degrees or below, the same as U. S. Motor gasoline.

In demanding that class of product jobbers appear to be following out the advice of Dr. G. G. Brown of the University of Michigan, research engineer for the Association of Natural Gasoline Manufacturers. At the recent convention of the National Petroleum Marketers Association at Atlantic City Dr. Brown said in answer to a question about gasoline endpoint:

"There is no increase in fuel economy, there is no increase in ease of acceleration or starting, and, according to Dr. Gustav Egloff of the Universal Oil Products Co., there is no increase in anti-knock properties by lowering the end point from 430 to 390 or even 370 degrees F. That would indicate that there is no difference whatever in lowering the end point from 430 to 380 if the volatility is kept up by other means."

Put Volatility Forward

DR. BROWN did not urge the jobbers to demand a higher gravity product but stressed the desirability of a high volatility for that part of the gasoline which distills off below 180 to 200 degrees F. Jobbers, however, are selling gasoline in competition with other motor fuels which are advertised as being 60 gravity and feel that they must have a similar product. They are assuming, also, that the increase in gravity with the end point unchanged or lowered only slightly, indicates greater volatility caused by the addition of natural gasoline.

The price at which the gasoline can be bought at the refinery is an important factor in building up sales of the new grade, 60-62, 437 end point. The old 60-62, 400 end point gasoline is selling at three quarters to a full cent per gallon over U. S. Motor gasoline for the very good reason that less can be produced from a barrel of crude. But with natural gasoline prices at their present level refiners have found it possible to increase the gravity and volatility of their gasoline without changing the end point greatly and sell the material at a premium of only about a quarter of a cent per gallon over 58-60 U. S. Motor.

In some cases refiners are known to have contracted to deliver 60-62, 437 end point gasoline to their customers over 1927 at a quarter of a cent over U. S. Motor while others are said to have contracted to sell at the U. S. motor price. These concessions may be warranted under present competitive conditions but there are indications that

market relationships may undergo radical changes before the termination of the contracts.

Naturals Coming Back?

THE research and publicity program of the manufacturers of natural gasoline was undertaken as a result of a period of low markets to stimulate consumption. After the high prices of the late summer and fall of 1925, manufacturers of natural gasoline increased their production by every possible means, new plants and better operations, while at the same time refiners began to study means of reducing their consumption of a product which they felt was costing them too much money.

The natural result of greater production coming when refiners were seeking to reduce their consumption was a tremendous increase in stocks of natural gasoline during the first six months of 1926. In Oklahoma and Kansas stocks increased from 6,564,000 gallons on Dec. 31, 1925, to a total of 16,503,000 on June 30, 1926, an increase of 151.4 percent. For the country as a whole stocks increased 98.8 percent, being virtually doubled. To an industry producing as much material as the refining industry, the total stocks of natural gasoline on June 30 this year of 27,307,000 gallons appears exceedingly small. But the natural gasoline industry cannot build up reserves at its plants without sustaining heavy losses and has never equipped its plants generally to store during slack seasons. The small surplus from month to month was sufficient to bring the price of Grade A in Oklahoma from a peak of 13¼ cents at the end of October, 1925, to a low of 8½ cents per gallon at the end of July, 1926. With the exception of the month of May prices declined steadily from month to month and stocks of finished gasoline increased steadily.

Situation Turned Around

THIS situation has been completely reversed since the middle of the year. While production of natural gasoline has grown from a daily average of 3,569,000 gallons during the first half of 1926, to an average of 3,937,710 in October, an increase of 10 percent, shipments have grown even more rapidly. During the first half of the year shipments averaged 3,494,500 gallons and in October 3,945,144 gallons, an increase of 12.9 percent.

The natural gasoline situation in the Mid-Continent is clearly depicted in Fig. 1, a chart based on figures of the U. S. Bureau of Mines with prices of Grade A taken from National Petroleum News. From this chart it will be observed that stocks of natural gasoline have been declining as rapidly since the first of July as they were accumulating during the first half of the year. From a peak of 16,503,000 gallons on June 30, stocks were down to 8,954,988 gallons on Oct. 31, a reduction of 7,500,000 gallons in four months.

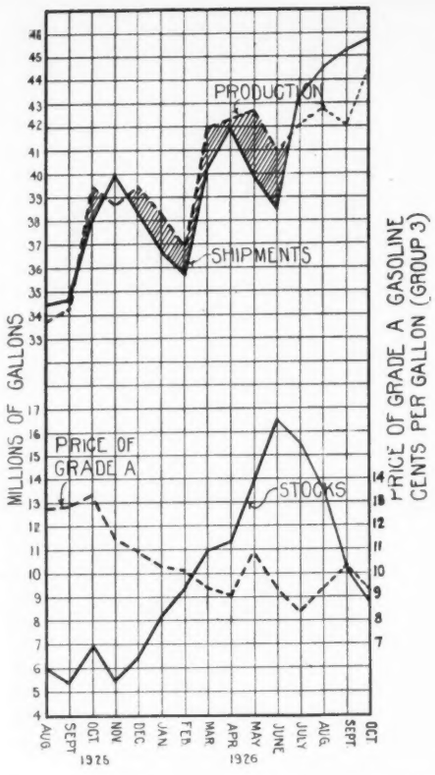

Fig. 1. Oklahoma and Kansas production shipments and stocks of natural gasoline by months with the average price of Grade A. cents per gallon, f.o.b. Group 3.

Since Oct. 31 figures are the latest available from the U. S. Bureau of Mines, the writer has made a special check of stocks of natural gasoline in the Mid-Continent as of Nov. 30. This check shows that the reduction in stocks continued during that month.

The survey conducted by the writer covered stocks in the hands of 34 manufacturers of gasoline in the Mid-Continent who are making an average of 1,162,000 gallons per day or over half of the production of the field. This group of companies held 4,693,605 gallons of natural gasoline in storage at their plants on Oct. 31, representing four days supply. On Nov. 30 the same group of plants held 4,320,151 gallons of gasoline or 3.7 days supply at the current rate of production. The decrease in stocks was 373,454 gallons or 7.9 percent. One manufacturer reported that he had a batch of 120,000 gallons go off color at one plant late in November which he could not ship, although he had orders on hand for the product. But for this misfortune the reduction in stocks probably would have been greater.

Stocks As of Dec. 15

IT was not passible to obtain figures from all of the 34 companies showing stocks as of Dec. 15. One important manufacturer producing over 100,000 gallons per day reported stocks totaling nearly 900,000 gallons on Oct. 31, 600,000 gallons on Nov. 30, and 420,000 gallons on Dec. 15.

A refiner who is able to produce a 59 gravity U. S. Motor gasoline direct from the crude without blending would have to use one part of natural gasoline to 12 parts of refinery gasoline to build the gravity up to 61 degrees A.P.I. In case the refiner has to use natural gasoline to produce a satisfactory motor fuel meeting U. S. Motor specifications he would have to add an additional 8 to 9 percent of natural gasoline to get an additional 2 degrees of gravity.

Refiners Buying Heavily

TO produce the new 60-62, 437 end point gasoline refiners are using greater quantities of natural gasoline than at any time in the history of the business. And unless there is an even greater increase in production than in the past it must be expected that the natural gasoline market will become even tighter than it is today after five months of drain on storage.

Further enlargement of the demand for high gravity motor fuel cannot fail to increase the present average differential of a quarter of a cent per gallon over U. S. Motor gasoline. If a shortage of natural gasoline develops the refiner will be forced to run more crude to produce the same motor fuel.

To produce a 60-62 gravity gasoline the average refiner running on an average grade of Mid-Continent crude will produce approximately 3 percent less motor fuel than if he were making a 58-60 U. S. Motor grade on a skimming operation. With skimming and cracking both the loss in production would be 4 to 4½ percent. In terms of crude charged to stills the refiner would have to run from 6 to 10 percent more oil to recover the same amount of gasoline the variation depending on the original recovery from the crude.

The full economic effect of the new tendency in gasoline refining and marketing probably will not be apparent for a number of months. In preparation for the future some factors have adopted a policy of not advertising any set specifications for their gasoline from which they may have to vary as a result of changing markets. These refiners and marketers are advertising a quality gasoline to meet operating conditions and are reserving the right to change specifications seasonably and without the embarrassment of having to back away from positive statements as to the merits of certain specifications.

In the Mid-Continent a good deal of speculation is being indulged in by refiners as to what steps the Standard Oil Co. of Indiana will take to meet the aggressive campaigns of its competitors. Many believe that a change in Red Crown specifications will be announced soon or that Solite will become the chief product of the company with the premium eliminated.

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N. Y. Standard Property and Operating Details Revealed for First Time

By Roger B. Stafford
N. P. N. Staff Writer

CLEVELAND, Dec. 20

OPERATING details of the Standard Oil Co. of New York and its Mid-Continent subsidiary, the Magnolia Petroleum Co., never before revealed publicly or semi-publicly, have been filed with the committee on stock list of the New York Stock Exchange in connection with the listing of $421,750,400 of capital stock of the New York company. A statement of the producing, refining, marketing and transportation properties together with financial statements, were filed with the stock list committee.

Chief subsidiaries of the Standard of New York and their outstanding capital were given as: Standard Transportation Co. of Delaware, $12,500,000; Standard Transportation Co., Ltd., of Hong Kong £1,500,000; Tank Storage & Carriage Co. of Great Britain, £25,000; Saddle River Oil Co. of New Jersey, $100,000 (inactive); Socony Proprietary, Ltd., of Australia, £51,400; Socony Burner Corp., $2,600,000; Magnolia Petroleum Co., $185,000,000, and General Petroleum Corp. of California, $58,019,000.

Herbert L. Pratt, president of the New York company who signed the listing statement, wrote the parent company had no production of its own but that the Magnolia and General, which are now wholly owned, had daily average production of 85,668 barrels of crude in September. Output of refineries in the first nine months of this year amounted to 32,517,464 barrels of all products. Natural gasoline production totaled 34,136,900 gallons in the first nine months or a daily average of 125,040 gallons.

PRODUCTION

Producing properties of the Magnolia are in Texas, Oklahoma, Kansas, Louisiana, and Arkansas. Its crude ranges from 18° to 46° A.P.I. gravity. General has producing properties in California, Wyoming, and Mexico with crude ranging from 12° to 36° A.P.I. gravity. Table No. 1 shows the distribution of the 190,495 acres of producing lands of the Magnolia and General and more than 1,700,000 acres of prospective lands. Table No. 2 gives the total production since 1920 of the Magnolia and General and the September daily average, individually and totally; also the number of producing and drilling wells.

NATURAL GASOLINE

MAGNOLIA on Oct. 1 had in operation 43 natural gasoline plants distributed as follows: Texas 21; Oklahoma 20, Arkansas one, and Louisiana one. It had under construction on that date two in Oklahoma, and one each in Texas and Arkansas. These plants produced 23,085,000 gallons of natural gasoline in the first nine months of this year.

Table No. 2
Crude Production

IN BARRELS—42 GALLONS

Year	Magnolia	General Pet.	Total
1921	18,191,420	4,197,014	22,388,434
1922	16,120,208	5,478,271	21,598,479
1923	15,037,335	10,684,638	25,721,973
1924	14,766,777	6,610,262	21,377,039
1925	15,671,941	6,931,557	22,603,498
1926—1st 9 months..	15,281,099	5,639,617	20,920,716
Sept., 1926, Daily average ...	61,918	23,750	85,668

NUMBER OF WELLS
(As of Oct. 1, 1926)

	Magnolia	General	Total
Oil	5,763	784	6,547
Gas	266	6	272
Drilling	287	64	351

With S. O. New York

Table No. 1—Distribution of Acreage

MAGNOLIA PETROLEUM CO.

	Fee		Lease	
	Producing	Non-producing	Producing	Non-producing
Texas	5,743	26,160	98,458	968,863
Oklahoma	1,264	3,398	47,291	489,940
New Mexico	....	1,599	.....	15,499
Kansas	80	284	4,820	10,439
Arkansas	29	.....	6,985	34,854
Louisiana	....	233	15,190	74,195
Mexico	....	.....	897	6,770
Total	7,116	31,674	173,641	1,600,560

GENERAL PETROLUEM CORP.

	Fee		Lease	
	Producing	Non-producing	Producing	Non-producing
California	6,990	18,528	1,851	20,665
Texas	....	.....	....	2,560
Wyoming	160	....	640	.....
Colorado	....	.....	....	21,447
Alaska	....	.....	....	7,680
Mexico	....	589	97	2,729
Total	7,150	19,117	2,588	55,081

At casinghead plants at Ventura and Tonner, Calif., together with its half interest in the output of the Chanslor-Canfield Midway Oil Co. plant at Santa Fe Springs, General produced 11,051,100 gallons in the nine months.

NATURAL GAS

MAGNOLIA through its subsidiary the Magnolia Gas Co. produces natural gas which, it burns at its Beaumont and Magpetco refineries. The company also markets gas in Beaumont and several other communities. It owns 153 wells which, Mr. Pratt said, were capable of flowing 1,150,000,000 cubic feet of gas a day. It also buys gas from other producers in the fields where it operates.

It has a gas line of 14-, 16-, and 18-inch pipe 227 miles from Louisiana and east Texas to Beaumont with capacity of approximately 60,000,000 cubic feet of gas a day. A gasoline plant at Latex extracts 4,000 to 6,000 gallons of gasoline a day from this gas. General disposes of its residual dry gas to public utility companies on the Pacific coast.

OIL PIPE LINES

THE Magnolia through its subsidiary the Magnolia Pipe Line Co. owns and operates 2,530 miles of trunk pipe lines and 1,334 miles of gathering lines. The trunk lines run from its refineries to fields in Texas, Oklahoma, Louisiana and Arkansas, consist of 2,172 miles of 8-inch pipe, 231 miles of 6-inch, 69 miles of 5-inch, and 58 miles of 4-inch.

Magnolia's gathering system connects with the following fields: Corsicana, Electra, Luling, Archer, Powell, Ranger and Panola, all in Texas;

Duncan, Burbank, Morrison, Cement, Cushing, Healdton, Wewoka, and Davenport, in Oklahoma;

Bull Bayou, Cotton Valley, Haynesville, and Pine Island, in Louisiana, and El Dorado and Smackover, in Arkansas.

Magnolia has 49 pumping stations on its gathering lines, 25 on its trunk lines and 17 combination gathering and trunk line stations. The system is delivering 80,000 barrels of crude daily to the Gulf coast supplying the Magnolia's refineries at Luling, Corsicana and Fort Worth. September runs averaged more than 97,000 barrels daily, Mr. Pratt wrote.

General's System

General has 398 miles of trunk pipe lines and 114 miles of gathering lines. It has a main trunk line 184 miles from the San Joaquin valley to its terminal at Los Angeles. Its lines serve all the principal fields in southern and central

California with the exception of Coalings, Ventura and Kern River. In San Joaquin valley it serves the Lost Hills, Belridge, McKittrick, Fellows, Taft, Buena Vista Hills, Maracopa, Sunset and Wheeler Ridge fields. In the Los Angeles basin it serves the Richfield, Olinda, Whitten, Montebello, Santa Fe Springs, Signal Hill, Torrance and Redondo fields.

The trunk line system consists of 259 miles of 8-inch pipe, 123 miles of 6-inch, and 16 miles of 4-inch. The system has a maximum capacity of more than 100,000 barrels daily for delivery to the General's Vernon refinery. All residuum and refined products from the refinery are piped to tide water for coastwise or trans-oceanic shipment. Mr. Pratt gives the September receipts as 70,000 barrels daily average.

Table No. 3 gives the pipe line runs of the Magnolia and General since 1920 through September, 1926.

Table No. 3
Pipe Line Runs

Year	Magnolia	General	Total
1921	18,564,972	9,505,281	28,070,253
1922	17,363,139	13,139,815	30,502,954
1923	25,421,993	28,170,802	53,592,795
1924	25,813,060	25,417,926	51,230,986
1925	23,442,998	26,358,777	49,801,775
1926—1st 9 mos.	21,381,368	19,246,796	40,628,164

REFINING

ON Oct. 1, Standard of New York and subsidiaries had a refinery daily throughput capacity of 184,500 barrels, cracking capacity of 32,000 barrels and topping capacity of 20,000 barrels. It had under construction additional units with capacity for 14,000 barrels of cracking stock daily. The topping plant was idle. It is at Tampico and is owned through the General.

Standard of New York's directly owned and operated plants with their straight-run capacities are: New York Harbor 23,000 barrels; Buffalo, N. Y., 3,500 barrels, and Providence, R. I., 10,000 barrels. Cracking stills at these plants have 9,000 barrels' capacity.

Magnolia's refineries and straight run daily capacities are: Beaumont, 50,000 barrels; Corsicana 3,000 barrels; Fort Worth 15,000 barrels; Luling 5,000 barrels, and Magpetco 15,000 barrels. The Beaumont plant had cracking capacity of 23,000 barrels daily and on Oct. 1 had 12,000 barrels more under construction. A 2,000-barrel cracking plant was then being installed at Fort Worth.

The General has two refineries in California: Vernon 50,000 barrels, and Lebec 10,000 barrels.

Table No. 4 gives the output of these refineries by the several operating companies and consolidated since 1920.

MARKETING

Domestic

THE Standard itself markets in New York and the New England states, the Near and Far East, Australasia, and South Africa. The Magnolia markets in Texas, Oklahoma, Arkansas, New Mexico, Kansas and Louisiana. General markets in California, Oregon, Washington and Alaska.

In the domestic market—New York and New England—Standard of New York had on Oct. 1, 526 bulk distributing stations many of which were on navigable waters. It owned and operated 1,159 service stations; had 3,913 motor vehicles of various types, and on Oct. 1 had 67,800 pumps in use at either its own service station or at dealers.

Magnolia had 623 bulk stations; 332 service stations, 136 iron barrel stations, and served 1,945 dealer stations. It had 1,242 motor vehicles and 1,152 tank cars.

General had 28 bulk stations in the three Pacific coast states and one in Alaska. Its stations at Los Angeles, San Francisco, Oakland, Seattle, Everett, Portland and Astoria are accessible to ocean going tankers. It had 706 motor vehicles and 125 tank cars but does not operate any service stations.

Foreign

Standard of New York has tankship terminals at the following ports:

Japan—Tsurimi, Itozaki, Osaka, and Nagasaki.

China—Shanghai, Hankow, Tientsin, Tsingtau, Moukden, Hong Kong, Amoy, Swatow, and Fouchow.

Philippines—Manila, Iloilo, and Cebu.

Siam—Bangkok.

Dutch East Indies—Batavia and Sourabaya.

Straits Settlements—Singapore and Penang.

Nurma—Rangoon.

India—Calcutta, Bombay, Madras, and Karachi

Ceylon—Colombo.

Syria—Beirut, Alexandretta, and Tripoli.

Turkey—Constantinople, Smyrna, and Mersina.

Bulgaria—Bourgas.

Greece—Piraeus, and Salonica.

Australasia—Melbourne, Sydney, and Wellington.

South Africa—Durban.

In addition to the foregoing it had more than 3,000 smaller distributing stations nearly all of which had rail or water transportation facilities, Mr. Pratt said.

The Standard and its subsidiaries had total steel tankage for 75,000,395 barrels and earthen storage in California for 10,595,000 barrels. The parent company had storage for 16,349,543 barrels in this country and 7,156,499 barrels abroad. Magnolia had tankage for 40,279,928 barrels and General for 11,214,425 barrels in addition to the earthen storage.

MARINE EQUIPMENT

THE Standard of New York operated 40 ocean-going tankships with a combined carrying capacity of 4,145,517 barrels. It owned 38 of these and leased two with a capacity of 206,000 barrels under long-term charters. Thirty of the owned tankers have cargo capacities of more than 70,000 barrels each.

Standard Oil Transportation Co. owned and operated in its domestic trade, for transporting petroleum products on the Great Lakes and inland waterways and in the New York harbor and local waters adjacent to the New York and the New England states the following marine equipment:

		Carrying capacity 42-Gal. bbls.	Cases
73	Bulk barges	833,214	.....
16	Motor bulk barges	195,833	.....
5	Acid barges	7,940	.....
2	Bulk launches	2,666	.....
2	General cargo steamers (19,530 tons d. w.)	.....	440,000
119	Deck barges	.....	939,500
25	Tugs	.....	.....
		1,039,653	1,379,500

The Standard in its foreign marketing and the Magnolia and General in their domestic marketing had the following:

S. O. New York Depreciation and Depletion Rates

CLEVELAND, Dec. 20

HOW a large corporation writes off depreciation and depletion is indicated in the application of the Standard Oil Co. of New York for listing of its stock on the New York Stock Exchange. Here are the rates as stated by President Herbert L. Pratt:

Office buildings .....2 to 4%
Other buildings .....5 to 20%
Tankage .....5 to 10%
Pipe lines .....5 to 12½%
Producing equipment, 10 to 33⅓%
Auto equipment .....20 to 25%
Tank steamers 5%
Other marine .....7½ to 20%

Depletion is calculated on cost, based on production, Mr. Pratt wrote. Depreciation is based on the useful life of structures and equipment.

Table No. 4
Refinery Output

IN BARRELS—42 GALLONS

	Gasoline, kerosene gas and fuel oils	Lubes and other products	Total
Standard Oil Co. of N. Y.:			
1921	9,368,487	922,506	10,290,993
1922	7,338,674	859,725	8,198,399
1923	8,354,696	895,978	9,250,674
1924	7,449,169	816,944	8,266,113
1925	6,762,811	997,073	7,759,884
1st 9 mos., 1926	5,035,112	665,820	5,700,932
Magnolia Petroleum Co.:			
1921	11,458,868	564,656	12,023,524
1922	11,701,157	775,042	12,476,199
1923	14,140,884	644,716	14,785,600
1924	15,809,048	792,368	16,601,416
1925	18,904,917	824,916	19,729,833
1st 9 mos., 1926	14,949,446	534,751	15,484,197
General Petroleum Corp.:			
1921	5,399,272	.....	5,399,272
1922	8,356,516	.....	8,356,516
1923	15,495,942	.....	15,495,942
1924	16,269,353	.....	16,269,353
1925	15,630,435	.....	15,630,435
1st 9 mos., 1926	11,332,335	.....	11,332,335
Total:			
1921	26,226,627	1,487,162	27,713,789
1922	27,396,347	1,634,767	29,031,114
1923	37,991,522	1,540,694	39,532,216
1924	39,527,570	1,609,312	41,136,882
1925	41,298,163	1,821,989	43,120,152
1st 9 mos., 1926	31,316,893	1,200,571	32,517,464

River steamers	5
Lighters and barges	96
Tugs and Launches	68
Junks, Sampans, etc.	134

FINANCIAL

OF the 16,870,016 shares, par value $421,750,400, which were listed, 16,760,931 are outstanding. The remaining 109,085 shares are those being purchased by employes under the stock purchase plan of Nov. 1, 1923. These shares are to be admitted to trading on the exchange when fully paid for and issued. That time will be about two years hence.

The total authorized capital of the Standard of New York is $437,500,000, or 17,500,000 shares of $25 par value each. The company was incorporated in New York Aug. 10, 1882, by trustees of the Standard Oil Trust with a charter of 50 years' duration. The charter was amended Sept. 19, 1923, and made perpetual. In 1892 the Trust was dissolved and the stock held by the trustees was transferred to the old Standard Oil Co. of New Jersey and held by it until that company was dissolved Dec. 1, 1911. The Standard of New York shares were then prorated among Standard of New Jersey shareholders. Table No. 5 shows the growth of the capital of the New York company.

The Standard of New York acquired a 70 per cent controlling interest in the Magnolia Petroleum Co. in 1918 and in 1925 acquired the minority 30 per cent by the exchange of $57,158,800 of its stock for the Magnolia stock. Magnolia now has a capitalization of $185,000,000 all of which, except directors' qualifying shares, are held by the New York company.

General Petroleum Corp. was acquired last May for 2,320,364 shares of Standard of New York with par value of $58,009,100. This company is capitalized at $60,000,000 and 58,019,000 of the stock has been issued.

Since Jan. 1, 1921, Standard of New York has paid cash dividends as follows:

Year	Rate	Amount
1921	16%	$12,000,000.00
1922	16%	12,000,000.00
1923	5.6%	12,601,741.10
1924	5.6%	12,690,526.80
1925	5.6%	12,790,276.80
1926—First and Second quarter 1.4% (35 cents per share) each quarter		10,049,246.90
1926—Third quarter—1.6% (40 cents per share)		6,694,372.30

Stock and distribution during that time have been:

Year	Rate	Amount
1922	200%	$150,000,000
1926	25%	71,582,500

Tables No. 6 and 7 give a comparison of the earnings and surplus of the

(Continued on page 28)

Table No. 5—Authorizations of Capital

The following table gives the dates and amounts of the various increases in capitalization since the organization of the Company and the purpose for issue:

Date of Authorization	Amount of increase	Total authorized issue on said date	For what purpose issued.
1882, Aug. 10	Original issue	$ 5,000,000	Organization—To acquire property
1892, Apr. 9	2,000,000	7,000,000	To acquire property
1903, Dec. 7	8,000,000	15,000,000	For cash at par
1913, June 5	60,000,000	75,000,000	Stock dividend
1922, Nov. 6	150,000,000	225,000,000	Stock dividend
1923, Sept. 19	10,000,000	235,000,000	For sale to employes under Stock Purchase Plan
1925, Nov. 5	140,000,000	375,000,000	To acquire property and stock dividend
1926, May 27	62,500,000	437,500,000	To acquire property

Table No. 6 Statement of Earnings for 1921 to 1925 Inclusive

Year	Earnings after Federal taxes but before interest depreciation, and depletion	Interest on bonds	Depreciation and depletion	Net earnings	Common Shares Outstanding end of year	Earnings per share
1921—Standard of New York and subsidiaries	*$20,923,334.94	$2,966,666.67	$8,257,696.60	$9,698,971.67	750,000	$12.93
Magnolia and subsidiaries	25,042,351.73	525,031.07	14,669,557.52	9,847,763.14	1,200,000	8.21
General and subsidiaries	7,232,987.97	280,064.00	2,767,378.16	4,185,545.81	909,688	4.35
1922—Standard and subsidiaries	* 32,086,443.00	3,400,000.00	9,251,708.60	19,434,734.40	9,000,000	2.16
Magnolia and subsidiaries	19,773,552.23	520,206.50	12,170,431.77	7,082,913.96	1,800,000	3.93
General and subsidiaries	6,696,378.67	669,296.00	3,259,385.76	2,767,696.91	908,680	2.80
1923—Standard and subsidiaries	* 28,250,680.92	3,400,000.00	9,887,342.93	14,963,337.99	9,012,986	1.66
Magnolia and subsidiaries	20,998,471.03	515,280.00	12,958,052.54	7,525,138.49	1,800,000	4.18
General and subsidiaries	10,016,350.29	829,308.15	3,195,644.85	5,991,397.29	1,037,808	5.56
1924—Standard Oil Co. of New York and subsidiaries	*35,950,288.45	3,310,554.01	10,619,691.60	22,020,042.84	9,101,412	2.42
Magnolia Petroleum Co. and subsidiaries	21,524,081.08	510,060.00	13,283,879.87	7,730,141.21	1,802,471	4.29
General Petroleum Corp. and subsidiaries	12,983,867.90	1,299,804.10	3,416,734.53	8,267,329.27	1,120,922	7.17
1925—Standard Oil Co. of New York (including Magnolia Petroleum Co. and subsidiaries)	69,462,621.77	2,114,877.51	25,767,358.15	41,580,386.11	11,459,264	3.63
General Petroleum Corp. and subsidiaries	11,744,919.32	1,172,342.31	4,167,879.68	6,404,697.33	1,141,442	5.41

Standard Oil Co. of New York and Magnolia Petroleum Co. earnings are shown for calendar year.
General Petroleum Corp. earnings are shown for fiscal year ended June 30.
Earnings per share shown for Standard Oil Co. of New York on $25 par value stock except 1921, when par value was $100.
Earnings per share shown for Magnolia Petroleum Co. on $100 par value stock.
Earnings per share shown for General Petroleum Corp. on $25 par value stock, after deducting 7% dividends on preferred Stock.
*Standard Oil Co. of New York earnings for year 1921 to and including 1924 include cash dividends from Magnolia Petroleum Co. as follows: 1921, $4,468,240; 1922, $4,944,960; 1923, $5,590,452 and 1924, $4,980,808.

Table No. 7—Analysis of Surplus for 1924 and 1925

	Standard and subsidiaries			Magnolia and subsidiaries			General and subsidiaries		
	Earned	Capital	Total	Earned	Capital	Total	Earned	Capital	Total
Balance:									
Jan. 1, 1924	65,161,596.08	40,865,538.41	106,027,134.49	11,929,125.64	3,165,770.94	15,094,896.58	.....	.....	.....
July 1, 1923	.....	.....	.....	.....	.....	.....	9,901,240.18	26,595,052.47	36,496,292.65
Earnings for period	22,020,042.84	.....	22,020,042.84	*7,730,141.21	.....	7,730,141.21	8,267,329.27	.....	8,267,329.27
Adjustments	†85,179.80	†879,365.08	†964,544.88	*129,345.07	†660,727.52	†531,382.45	†19,924.28	*7,054,397.96	*7,034,473.68
	87,266,818.72	41,744,903.49	129,011,722.21	19,529,921.78	3,826,498.46	23,356,420.24	18,188,493.73	19,540,654.51	37,729,148.24
Less: Dividends for period	12,690,526.80	.....	12,690,526.80	7,200,539.00	.....	7,200,539.00	2,361,415.87	.....	2,361,415.87
Surplus end of period	74,576,291.92	41,744,903.49	116,321,195.41	12,329,382.78	3,826,498.46	16,155,881.24	15,827,077.86	19,540,654.51	35,367,732.37
Balance, Jan. 1, 1925—Standard Oil Co. of New York and subsidiaries	74,576,291.92	41,744,903.49	116,321,195.41	.....	.....	.....	.....	.....	.....
Balance, Jan. 1, 1925—Magnolia Petroleum Co. and subsidiaries	12,329,382.78	3,826,498.46	16,155,881.24	.....	.....	.....	.....	.....	.....
Balance, July 1, 1924	.....	.....	.....	.....	.....	.....	15,827,077.86	19,540,654.51	35,367,732.37
Earnings for period	41,580,386.11	.....	41,580,386.11	.....	.....	.....	6,404,697.33	.....	6,404,697.33
Adjustments	*22,303,654.48	†22,683,103.60	†379,449.12	.....	.....	.....	*531,267.52	*1,254,910.96	*1,786,178.48
	106,182,406.33	68,254,505.55	174,436,911.88	.....	.....	.....	21,700,507.67	18,285,743.55	39,986,251.22
Less: Dividends for period	15,473,109.80	.....	15,473,109.80	.....	.....	.....	2,474,385.00	.....	2,474,385.00
Surplus end of period	90,709,296.53	68,254,505.55	158,963,802.08	.....	.....	.....	19,226,122.67	18,285,743.55	37,511,866.22

*Deductions. †Additions.

Panhandle Per Well Per Day Yields Decline to 208.9 Barrels

By Paul Wagner
N. P. N. Staff Writer

HOUSTON, Dec. 18.

TEXAS Panhandle production, in terms of per well per day averages, continues to show consistently regular declines. At no time in the last two months has the per well per day yield reacted upwards to a level above that of any preceding week in the period.

Per well per day production of the entire Panhandle declined from 283.8 barrels the first week in October to 208.9 barrels in the week ended Dec. 10. The average fall from week to week ranged between seven and 13 barrels per well per day, although in two instances these declines were less consistent.

In Hutchinson county, which has been more intensely drilled than the rest of the Panhandle producing area, the decline was from 315.7 barrels per well per day in the first week of October to 239.3 barrels in the week ended Dec. 10. With two or three exceptions the decline from week to week amounted to from 10 to 15 barrels per well per day as figured on a net loss basis.

Fewer Completions Now

COMPLETIONS in the Texas Panhandle in the last seven weeks of the period ranged between 17 and 27 per week as compared with a considerably larger number in preceding months.

An accompanying table showing per well per day averages for the Panhandle territory as a whole and Hutchinson county separately, goes to the beginning of 1926 and furnishes detailed field performance data covering the entire period of greatest importance in Amarillo district development.

The table has been brought to date from Oct. 15, which was the latest date used in an analysis of Panhandle development published on pages 21-23 of the Oct. 27, 1926, issue of National Petroleum News. That analysis was accompanied by a special supplement giving detailed well records and production figures on virtually all individual completions in the Panhandle territory.

Total daily production in the Panhandle at that time was 154,651 barrels from 549 wells; Hutchinson county then had 143,069 barrels of that total from 458 wells. Daily average production reached its peak for the year in the week ended Nov. 20, when the Texas Panhandle made 167,597 barrels from 692 wells, the Hutchinson county area accounting for 153,085 barrels of the total from 560 wells. As may be seen by reference to the accompanying table the Dec. 10 record of entire Panhandle was 159,232 barrels from 762 wells; Hutchinson county 146,224 barrels from 611 wells.

Trend Borne Out

THE Panhandle decline record since the first week of October bears out the trend previously indicated by figures applying to previous weeks and months after the per well per day average peak had been reached in the week ended June 12, last. In that week, with 149 wells making 50,337 barrels total, the per well per day average for the entire Panhandle was at its maximum of 344.5 barrels; Hutchinson county, with 108 wells making 46,071 barrels, had a per well per day maximum of 426.5 barrels.

Only in the week ended July 24, last, did the Hutchinson county area make any subsequent approach to its per well per day maximum. At that time, with 176 wells making 71,589 barrels, the production curve turned upward for a single week to 406.7 barrels per well per day. For the entire Panhandle the highest per well per day average at any time subsequent to the week of June 12 was also in the week ended July 24, when the yield stood at 332.6 barrels. The curve then showed minor fluctuations from week to week until the first week in October, after which week the decline has been such that consistent declines have followed weekly.

What Study of Table Shows

A STUDY of the accompanying table shows among other things that since Nov. 1, the Hutchinson county area tends more nearly to reach a well average party with the total Panhandle territory than previously. The larger number of wells in the Hutchinson county area, however, tends to reflect its more prolific yields both total and per well per day averages.

It is obvious that the producing area outside of Hutchinson county is relatively lean, at least in the developed part, when it is considered that of 762 wells in the Panhandle 611 are in Hutchinson county and 151 outside of it. The 151 wells, when segregated from the territory as a whole, show a daily average for the group of 86.1 barrels.

What Pulse of Texas Panhandle Production Shows

	ALL PANHANDLE			HUTCHINSON COUNTY		
Week Ended	Wells Producing	Daily Average In Bbls.	Daily Per Well Average	Wells Producing	Daily Average In Bbls.	Daily Per Well Average
Jan. 1	61	5,217	86.5	23	2,802	121.8
Jan. 8	61	4,897	80.3	23	2,802	121.8
Jan. 15	61	5,448	89.3	23	2,938	127.7
Jan. 22	62	5,681	91.6	24	3,209	133.7
Jan. 29	65	5,376	82.7	27	2,942	108.9
Feb. 5	66	5,445	82.5	27	3,221	119.2
Feb. 12	68	5,082	74.8	27	2,900	107.4
Feb. 19	74	6,147	83.0	32	3,791	118.4
Feb. 26	74	6,406	86.6	32	4,121	128.7
March 5	74	6,404	86.6	33	4,231	128.2
March 12	75	7,040	94.0	34	4,755	139.8
March 19	78	7,796	99.9	37	5,102	137.8
March 26	80	9,048	113.1	39	6,519	167.1
April 2	83	9,427	113.6	40	7,050	176.2
April 9	88	9,720	110.5	45	7,056	156.8
April 16	95	10,136	106.7	51	6,937	136.0
April 23	99	16,095	162.6	51	13,091	256.6
April 30	100	15,897	158.9	55	12,961	234.6
May 7	103	18,303	177.7	59	15,314	259.5
May 15	103	24,722	240.0	69	21,248	307.9
May 22	126	31,110	246.9	85	28,161	331.3
May 29	139	38,793	279.0	94	36,285	386.0
June 5	151	39,406	261.0	104	36,289	348.9
June 12	149	50,337	344.5	108	46,071	426.5
June 19	172	52,723	306.5	124	46,784	377.2
June 26	184	48,051	261.1	132	42,745	323.8
July 3	186	56,418	303.3	136	50,269	369.6
July 10	204	55,331	271.2	149	49,538	332.4
July 17	217	63,303	291.7	161	58,337	362.3
July 24	232	77,157	332.6	176	71,589	406.7
Aug. 2	255	82,553	323.7	196	75,438	384.8
Aug. 9	279	89,714	321.5	216	81,061	375.3
Aug. 13	328	97,187	296.3	245	87,427	357.0
Aug. 20	366	107,005	292.3	292	98,915	338.8
Aug. 27	389	118,034	303.4	321	110,019	342.0
Sept. 3	399	116,323	291.5	352	108,897	328.0
Sept. 10	415	118,731	286.1	348	110,447	317.4
Sept. 17	440	121,711	276.6	365	112,589	308.4
Sept. 24	474	122,443	258.3	394	113,545	288.2
Oct. 1	487	125,935	258.6	403	116,057	287.9
Oct. 8	508	144,213	283.8	424	133,859	315.7
Oct. 15	549	154,651	281.7	458	143,069	312.3
Oct. 22	594	161,973	272.6	490	147,957	301.9
Oct. 29	616	159,612	259.1	504	146,404	290.4
Nov. 6	636	161,509	253.9	518	146,404	286.2
Nov. 13	666	162,182	243.5	538	148,286	274.5
Nov. 20	692	167,597	242.1	560	153,085	273.3
Nov. 26	709	162,317	228.9	574	148,347	258.4
Dec. 3	736	158,988	216.0	594	145,104	244.2
Dec. 10	762	159,232	208.9	611	146,224	239.3

Doheny Grateful He's Exonerated Of Conspiracy Charge

Staff Special

WASHINGTON, Dec. 20

EDWARD L. DOHENY, SR., California oil operator who founded the Pan American Petroleum & Transport Co., and Albert B. Fall, secretary of the interior in the first two years of the Harding administration, have been found not guilty of conspiring to defraud the government in the letting of a contract to build a fuel oil depot for the navy at Pearl Harbor, Hawaii, and the leasing of the Elk Hills, Cal., naval oil reserve to the Pan American Petroleum Co. of California.

The jury reported at 10 a.m. Dec. 16 after deliberating from 3 p.m. the day before. When the verdict was announced a noisy demonstration ensued and the marshal broke a gavel in rapping for order before Justice A. A. Hoehling, who presided in the trial in the Supreme Court of the District of Columbia, could canvass the jurors to ascertain if each had joined in the verdict.

The canvass ended, friends besieged both the elderly defendants and Frank J. Hogan, chief of the Doheny counsel. Mr. Doheny greeted some of the newspaper correspondents and said, "Boys, I am mighty glad. It's what I deserved and what I expected, but if the verdict had been different, I could have stood it."

Later Mr. Doheny's counsel gave out this statement over Mr. Doheny's name:

Doheny Is Gratified

"I AM gratified by the result. The ordeal has been a terrible one. After a lifetime of honorable effort, I have seen my principal work, which was to make a good name to hand on to my son and my grandchildren, almost destroyed. I hope that the American people, whose belief in trial by jury amounts almost to a religion, will accept the verdict of this typically American jury."

Whether Fall and Doheny will be tried on the bribery indictment which also grew out of the Pearl Harbor-Elk Hills deal and Doheny's $100,000 loan to Fall, has not been decided by government counsel.

The verdict was followed by some bitter expressions at the Capitol, particularly from Senator Heflin of Alabama, who severely criticised the charge of Justice Hoehling to the jury, citing the fact that Hoehling was a Harding appointee. Senator Walsh of Montana, who was the "prosecutor" in the senate investigation of the oil lease cases, defended the conduct of the Fall-Doheny trial by Justice Hoehling.

Seek to Quash Indictment

WASHINGTON, Dec. 21—Because Justice Bailey of the district Supreme Court was too busy with other matters, the possible arraignment of Harry F. Sinclair and Albert B. Fall, and arguments on their motion to quash the indictment alleging conspiracy to defraud the government in the Teapot Dome lease and contract, set for Dec. 17, were put off until today.

The motion to quash the indictment is based on the broad ground that congress, by enacting special legislation providing for the prosecution of the accused and the repeal of the statute permitting appeals in criminal cases in advance of trial and after the defendants in this case had noted such appeal, is depriving the defendants of their constitutional rights. Justice Bailey, before the hour set for the making of the motion, seemingly intimated that he would be busy and might not reach the Sinclair and Fall case.

Fall was not in court, although he had arranged to be on hand if called by telephone. Sinclair was present but counsel for the government were not. Justice Bailey noted the presence in the courtroom of one of District Attorney Gordon's young assistants when he looked for some one representing the government. He told the young man to represent the government and to him he imparted the information that he would hear argument on the motion to quash the indictment today.

Although nothing was said the fact that the court put off arguments on the motion to quash until a few days before Christmas created the impression that even if he denied it he would put off the trial until after the holidays contenting himself with arraigning the defendants, taking their pleas and setting the time for the trial.

Coming Meetings

South Dakota Independent Oil Jobbers Association, Carpenter Hotel, Sioux Falls, S. D., Jan. 4, 5.

Wisconsin Independent Oil Jobbers Association, Hotel Pfister, Milwaukee, Jan. 10, 11, 12.

Iowa Independent Oil Men's Association, Fort Des Moines Hotel, Des Moines, Ia., Feb. 2, 3.

North Dakota Petroleum Association, Fargo, N. D. Feb. 3, 4.

Michigan Independent Oil Men's Association, Detroit, Feb. 10 and 11.

Ohio Petroleum Marketers Association, Neil House, Columbus, O., Feb. 17, 18.

American Oil Men's Association, Congress Hotel, Chicago, March 22, 23, 24.

American Oil Burner Association, Broadway Auditorium, Buffalo, N. Y., Apr. 5, 6, 7.

Southeast Ohio Producers Continue Meetings

CLEVELAND, Dec. 20.—Another sectional meeting of the Southeastern Ohio Oil and Gas Producers' Association will be held Jan. 13 at Newark, O. The last meeting of the association was held at Bremen Dec. 9 and more than 100 producers and other persons interested in southeastern Ohio production attended.

After being welcomed to Bremen by H. E. Young, president of the Bremen Chamber of Commerce, the producers heard their president, A. D. Hufford, outline the plans of the organization to promote the use of products of Ohio crude. Mr. Hufford submitted a list of committee appointments which were unanimously approved. The committees and their members are:

Marketing—H. D. Atha, Logan, chairman; A. E. Faine, New Straitsville; A. D. Hufford, Bremen; H. E. Stewart, Woodsfield, and C. F. Speery, Marietta.

Membership—F. W. Douglass, Woodsfield, chairman; E. J. Mildren, Marietta; F. C. Sharpnack, Bremen; Barton Holl, Logan; F. M. Stover, New Matamoras; George Eggert, Lancaster, and Charles Scholl, Logan.

Legislation—H. H. Watson, Logan, chairman; H. E. Smith, Marietta; W. E. Burns, Marietta, and F. H. Ward, Woodsfield.

Production—O. C. Dunn, Marietta, chairman; Alex LeCroix, Lancaster; Perry Sturm, Bremen; C. H. Bell, Logan, and I. C. Grimm, Woodsfield.

Publicity—Mr. Faine, chairman; Granville Berlin, Logan, and W. G. Wigton, Newark.

Mr. Faine was the principal speaker. He said the deep sand territory of southeastern Ohio cannot be developed on the present market. Every Clinton sand producer is losing money, he asserted. The cost of drilling and putting a Clinton well on the beam is $15,000, he said, not considering taxes, maintenance, depletion, and operating charges. He said a $4 market would be required before the Clinton wells would show a reasonable profit. He declared that the price differential for Ohio oil under that of West Virginia and Pennsylvania was unjust.

What he said was approved by other speakers at a round table discussion. Among those who spoke were: C. C. Wigton and George Weaver, Newark; C. W. Kerr, Lancaster; H. Barber, Logan; W. Hunter Atha, Zanesville; Mr. Hufford; F. F. Thompson, Bremen; H. D. Atha, Logan, and A. H. Squier, Reno, Pa.

W. L. Franks, Logan, is secretary of the association.

Jobber Builds Gallonage on Quality In Nest of Price Cutters

By Ward K. Halbert
N. P. N. Staff Writer

THE telephone bell was ringing in the office of Irving Oil & Supply Co., 3615 Addison St., Chicago, one morning when George Pretzel, secretary and manager, reported for work. He answered the call to find a valued customer on the wire, who talked very soberly.

"Say George," he began, "I just signed a check for my month's gasoline and oil bill and I thought I'd call you up and ask why I should pay you 20 cents a gallon with regular Q. D. A. discount when I can get gas' in two blocks of your place for 18 cents and the same discount.

"Now you know I am not a kicker. You are a good friend of mine and I have always gotten good stuff from you; but there are no less than 25 stations in town where I can get gasoline at 18 cents. I have always paid my bills regularly and we operate five trucks which is a good little account, and 2 cents a gallon is 2 cents a gallon in my business where motor fuel is one of the big items of expense."

George Pretzel was ready for him. It was not the first time he had been approached in that way. So he replied in just the way he had instructed all of his sales force to answer.

"Now Sam, I don't wan't you to think we don't appreciate your business. Your account is a good one. We wish all our accounts were just like it, but our costs won't let us sell gasoline for 18 cents. We don't sell anybody cheaper than we sell you. (We can't). But I don't wan't you to pay us 2 cents a gallon for friendship. If you can get good gasoline for 18 cents, I'd say take advantage of it. Only I don't think you can do it."

Suggests an Experiment

"ISN'T that fellow selling the same stuff you are?"

"No Sam, he is not selling the same stuff we are. It may be just as good. He may be able to buy it cheaper than I can. I don't know what he handles. But I know I am still buying the best gasoline I can get for my trade. I will just make you a friendly suggestion.

"Your bills have been running about the same from month to month with us, haven't they?"

"Yes, they are all about alike."

"All right, you change over to this other station for a month or two and compare the bills. If he is really cheaper than I am, over a reasonable length of time, we could not blame you for buying from him."

Mr. Pretzel says he goes confidently on the theory that a price cutter's gasoline is not worth any more than he gets for it. Often his suggestions to big buyers are a strong selling argument. They build up a doubt in the customer's mind about the "price-cutter" and his goods.

Maybe they think the "bootlegger" will make up for a cut price by giving short measure. Maybe they think his product is an inferior blend that will not give the power in miles per gallon. Maybe they think it will damage their motors. The main point, however, is many of them never change after Mr. Pretzel suggests it. The important thing is that some of them do change and learn that their gasoline bills are actually higher in spite of the cut price and return to do business with Irving Oil Supply.

An Eyesore Transformed

There were few spots in Chicago more wind-swept and dusty than Irving Oil & Refining Co.'s Ridge Ave. filling station in 1925. This picture shows how it looked in 1926 after C. P. Stowell accepted work there as an attendant. Mr. Stowell's hobby is gardening and the firm gave him a free rein. Mr. Stowell's story of how an oil company's station can be beautified with shrubs and flowers will be told in a later issue of National Petroleum News.

Irving Oil & Supply Co. is a small institution in comparison to other oil companies doing business in Chicago. It began operating early in 1921, a $10,000 corporation with two filling stations, and continued that way for a year buying gasoline in tank wagon lots. In 1922 Mr. Pretzel entered the organization and re-organized it into a $100,000 corporation, with a bulk plant at 3615 Addison street. Now there are five filling stations and the business has always paid its 8 per cent annual dividend. The bulk plant has a capacity of 130,000 gallons and two big tank trucks move six cars of gasoline a week from it, on the average, over a year.

Of course two trucks have to work hard to move a car of gasoline a day over the crowded streets of Chicago, but Mr. Pretzel's stations are all close to the bulk plant and he has solicited no industrial or re-selling customers at great distances. The longest run any truck has to make loaded is to the company's own filling station at 5985 Ridge Ave., three miles away. One stake truck takes care of all case goods delivery.

The organization is managed by Frank Pasdeloup, president; George Pretzel, secretary and manager, and Oscar Umenhofer, treasurer. All of them are active in the business every day, Messrs. Pasdeloup and Umenhofer largely on the outside with the sales force. Even Mr. Pretzel, the office man, visits each station every day. It is the company's proud boast that each of the five stations increased business in 1926, month by month over 1925. The main reason for the contact of the management with the stations is to see that the trade is treated well and made to understand that they are treated well, Mr. Pretzel says.

Clear Up Doubts

CUSTOMERS always get the better end of the bargain when they drive into a station of the Irving Oil & Supply Co. That is one of the company's rigid policies. Certainly this firm is not peculiar in this respect, for plenty of oil men give their customers good measure

and good merchandise. But the Irving Oil & Supply Co. make their customers know that they are getting full measure.

A few months ago one of the directors of the North Shore Motor Club halted his machine in front of an Irving filling station on the north side of Chicago. He did not get out of the car but quickly adjusted the mirror by the windshield so he could watch the attendant without turning his head.

"Good morning," said the attendant.

"Ten gallons," said the customer, and the attendant proceeded to the pump and started service. After he had set the gage on his pump and the gasoline started flowing the nozzle of the hose slipped and about half a gallon of gasoline spilled on the ground before it could be replaced. The motorist said nothing about it however.

When all the gasoline was out of the bowl the attendant pumped another gallon into it and started to release it through the hose. Then the customer protested:

"I only asked for 10 gallons," he said.

"That's right," replied the salesman, "but I am making up for what I spilled."

"Is that a meter on your pump?" the customer inquired, getting interested.

"Yes sir, it is."

"Well if the meter reads 11 gallons and I only pay you for 10 gallons, what will the boss say?"

"I don't think he will be mean about it," was the reply.

"That's not the point," said the customer. "If this is going to be charged up to you, I'd rather pay it myself."

"Oh no! I will probably not have to pay it myself," the man at the pump explained. "The rule of the management is to give full measure. The auditor will check the meter reading and the cash. But I will explain the shortage. After that, if the boss thinks I ought to pay for it, I will. But he never did charge me up with anything like that before."

The Test of the Pie

THERE have been several incidents like that at the company's five filling stations. The attendants have been told that they can be excused for any error except to "gyp" a customer. They make no secret of it. That is the one unpardonable thing, and gradually the trade begins to find it out.

Motorists are suspicious. The efforts of alarmist politicians, reactionary newspapers and motor club secretaries, hunting an issue, have not been in vain. Especially in big towns where a great part of the gasoline is distributed by stations having no company connection, the trade enters a strange station half expecting to be "hooked". The Irving Oil & Supply Co. has built up business overcoming that suspicion and selling each customer upon the idea that the company's transactions are right.

When George Pretzel built a gasoline bulk plant in Chicago in 1921 the detail of erecting fire walls to comply with city law cost him $10,000. The ordinance was passed by the council only a few months before and prescribed that all above-ground gasoline tanks be surrounded by walls forming a basin of 2½ times the capacity of the tank.

The bill was drafted and fostered by the council's building committee. Its chairman was the alderman from the 26th ward (Ravenswood) George Pretzel, in the building material business. He had no idea of ever going in the oil business then. "Serves him right!" did you say? He says he would build the same kind even if the law were repealed.

He was middle aged when he got out of politics but he attended night school five nights a week for two years studying oil. He graduated from National Petroleum School, Chicago, and now runs a full-fledged oil jobbing business presiding over office and laboratory himself.

Well-Known Oil Men Talk At Nebraska Meeting

OMAHA, NEB., Dec. 20.—Oil men furnished most of the program as well as the entertainment at the sixth annual convention of the Nebraska Independent Oil Men's Association held on Dec. 15 and 16 at the Hotel Fontenelle, Omaha. About 230 attended the meeting.

Among the principal speakers were L. V. Nicholas, president of the National Petroleum Marketers Association, Chicago, who spoke on the future of the Independent marketer; Earl Coryell, credit manager, Coryell Oil Co., Lincoln, Neb., whose subject was "Credit Waste;" and Theodore A. Peck, head of the lubrication engineering department of the National Petroleum Marketers Association, who outlined the fundamental principles of lubrication.

Other speakers included Charles M. Sutherland, secretary and treasurer of the association, who gave a report of the various oil conventions he had attended; Jack Nourse, Nourse Oil Co., Kansas City, who spoke on the benefits of an association; L. V. Surtees, salesman, Cosden Sales Corp., Chicago, who talked on filling station problems; John M. Carson, Cosden Sales Corp., Chicago, whose subject was "Meeting Competition"; Ora S. Spillman, attorney-general of Nebraska, who pointed out some of the problems of the administration of justice; T. W. Bass, chief of the gasoline tax bureau, who reported the work of the gasoline tax administration and inspection conference which was recently held at St. Louis. P. E. Clements, legislative secretary, of the Nebraska Good Roads Association, Sanford T. Hudson, of Chadron, Neb., S. A. Wassum, Tekamah, the latter two directors of the association; and Arch Stafford, of the Quaker Petroleum Co. who was toast master, were also speakers.

The advertising plan of the Independent Oil Men of America was presented by Raymond Shaw, director.

Luncheon on the first day was furnished by Independent oil men of Omaha to 138 jobbers. Music was dispensed by the Jamieson oil quartet and by the Mona Motor Oil orchestra at the luncheon and at the banquet and dance on the evening of Dec. 16. Entertainment features at the banquet were furnished by the Quaker Petroleum Co., Commerce Oil Co. and the Forsell Oil Co.

A report of the resolutions committee of the association pointed out that the Independent oil marketers of Nebraska are now selling about 75 per cent. of the petroleum products sold in the state, and that oil jobbers collect annually over $3,000,000 in taxes for the state.

Officers elected for the coming year are: Morris Milder, U. S. Oil Works, Omaha, who succeeds George Coryell, Coryell Oil Co., Lincoln, as president; Mr. Coryell, first vice president; Charles M. Sutherland, secretary-treasurer. Directors of the association are: F. R. Linderman, Central City; E. C. Uhlig, Sutherland; G. A. Steele, Omaha; S. A. Wassum, Tekamah; W. F. Wood, Haigler, and C. C. Rosenberg, Lexington.

Minnesota Co-ops Plan Co-operative Buying

MINNEAPOLIS, MINN., Dec. 13.—The semi-annual meeting of the Minnesota Co-op Oil Co., which is the state organization of co-operative oil companies was held Nov. 19 at Mankato, Minn. Representatives from nearly every co-operative oil company were present.

The executive board sanctioned a plan of united purchasing of petroleum products, details of which will be worked out immediately and presented to the various companies, according to E. G. Cort, Albert Lea, Minn., who is in charge of the purchasing and marketing departments.

Officers of the company are: A. P. Bartsch, president of Central Co-op Oil Co., Owatonna, president; J. Trude, secretary of Peoples Co-op Oil Co., Jackson, vice president; George Smith, president of Cottonwood & Lyon County Co-op Oil Co., Marshall, vice president; F. H. Osborn, secretary of Freeborn County Co-op Oil Co., Albert Lea, secretary-treasurer; and Joseph Barten, secretary of New Prague Co-operative Oil Co., New Prague, member of executive board.

Offices of the state organization are at 3300 East Hennepin Ave., Minneapolis, where compounding and storage facilities are maintained.

Valvoline Moves Headquarters

CHICAGO, Dec. 18—After Dec. 18 the office of the Northwestern Division of the Valvoline Oil Co. will be 2315 Tribune Tower, (435 North Michigan Ave.), Chicago. Valvoline offices have been on the west side of the business district on North Clinton. They are now housed in what is considered the city's most monumental structure. The new telephone number is Superior-7436.

Oil Lands of Five Civilized Tribes To be Leased by Auction

By Lawrence E. Smith
N. P. N. Staff Writer

MUSKOGEE, OKLA., Dec. 18 SALE of oil and gas leases on lands of restricted Indians of the Five Civilized Tribes will be held by public outcry method at the Federal Building, Muskogee, Feb. 15.

With this sale the five tribes will start handling their leasing in the same manner as do the Osages, whose sales always are events of widespread interest. However, the public bidding is the chief similarity to be noted, as the five tribes' leases will not be selected for sale arbitrarily by the federal agents as they are in the case of the Osages.

The new regulations providing for the change were promulgated by the Secretary of the Interior a few days ago. They take effect Jan. 1. The change appears to be pleasing to oil operators, judging from the comments of a few who have discussed it with this writer. Confusion has come about from time to time in the past under the method of direct negotiation between the company or individual seeking the lease and the Indian allottee. It was always a matter of uncertainty after the operator had agreed with the Indian whether the bonus would be acceptable to the department.

The oil inspector of the Five Civilized Tribes was empowered to pass on the adequacy of the bonus; sometimes, even after the inspector had made his recommendation, the Secretary of the Interior refused to approve the lease on the ground of inadequate bonus and in a few cases where the operator had made agreement with the Indian, and in the interim prior to approval of the lease its value had been enhanced by reason of discovery of oil or gas nearby, the department took notice of the increase in value and hiked the bonus.

Under the new arrangement, there will be no uncertainty as to what the bonus is to be and within a few days the high bidder will know whether he has bought something.

750,000 Restricted Acres Unleased

AT this time, according to estimate expressed by C. L. Ellis, district superintendent in charge of Five Civilized Tribes affairs at Muskogee, the acreage of unleased restriced lands totals about 750,000 acres. Originally there were about 19 million acres in the areas held by the five tribes. Of this about 15 million acres were allotted and at this time about 10 per cent of this 15 million acres classifies as restricted lands, about 50 per cent of this being under lease. The total number of leases on this class, large and small, is about 12,000.

Now, the new manner of leasing restricted lands—except those of minor and incompetent Indians, which will continue to be made through their guardians and the local probate courts, subject to the approval of the Department of the Interior—will originate with the company or individual desiring the lease. Montmorency Fixico, say, to choose a surname rather common, has some land which comes under the restricted class. The Gypsy Oil Co. desires to lease the land. The company must go to Montmorency and get his agreement to a request that the superintendent of the five tribes advertise the lease for sale at the public sale at Muskogee. The form which will be used for this purpose is as follows:

Application for Sale of Oil and Gas Lease.

————Okla., ————, 192—.

Mr. C. L. Ellis, Dist. Supt. in Charge,
Five Civilized Tribes Agency,
Muskogee, Oklahoma.

Sir:

I hereby request that a leasehold for oil and gas mining purposes be advertised and offered at public sale, as provided by the existing Departmental regulations, on the following described land:

The above land was allotted to and is owned by ————, ————Blood citizen of the ————Nation, Roll No. ————.

You may accept this application as my agreement to attend the sale and bid for a lease on the said land.

Respectfully,

This application to be filed in duplicate. (This application, to avoid delay in advertising, should be accompanied by the written consent of allottee to offering said land for lease.)

Sales will be held semi-monthly after two weeks' advertising by posting, by notices in newspapers and by circulars containing full information as to dates of sale and description of tracts offered. Such circulars will be sent regularly to those who supply their addresses to the superintendent at Muskogee.

"Sweet Adversity"

PROVING that Shakespeare was right when he said "sweet are the uses of adversity" one oil marketer has discovered one ingenious way of using the gasoline tax as a "sweet adversity."

Recently the St. Johns Gas & Oil Co., St. Johns, Mich., posted these signs at its service stations, according to Clark Rathbun, manager:

"On account of the state gasoline tax, there will be NO MORE CREDIT given at this station."

The 2 cent gasoline tax in Michigan went into effect on Jan. 29, 1925.

Now, there is an element of chance in the new arrangement and at times the trouble and expense to which a company or individual has been put to secure the application will come to nothing. Suppose the Gypsy, after getting Montmorency Fixico's lease sale initiated, comes to the sale to make its bid. The Prairie or the Carter, say, may decide that such lease is worth more than the Gypsy is willing to bid and so realizes on the Gypsy's efforts.

Lease Brokers Hit

THIS probably will even iseli up as it goes along, but is probably going to be somewhat hard on the lease brokers who have specialized in leases on restricted lands of the five tribes. The going is somewhat rough at times, as anyone knows who has had experience with the Indian. Much time frequently is consumed in the diplomatic work of negotiating a lease with the Indian and some companies have been willing to pay the broker a reasonable figure over the bonus he pays the Indian just to be rid of the bother. Under the new order of things the broker is going to take something of a chance when he spends his time getting the Indian's application through, then facing the bidding of anyone who cares to compete at the sale.

Regulations covering the leasing of restricted lands, as amended effective Jan. 1, provide:

Successful bidders shall deposit with the officer in charge on the day of the sale a certified check or bank draft for 20 per cent of the bid.

Successful bidder will be allowed 30 days' time from date of notice of acceptance of his bid to procure from the Indian allottee a lease in quadruplicate on departmental form and to file the lease and supporting papers required.

Where part of the bonus bid for lease is paid directly to the lessor upon his signing the lease affidavit of the Indian to that effect must be sworn to before a U. S. commissioner, Indian superintendent, local representative of the five tribes, county, district or federal judge or clerk of federal court. This must show amount paid and the balance is to be paid in to the office of the superintendent when the lease is filed.

If the successful bidder fails to complete the lease or to pay the full amount within 30 days, or if the lease is disapproved through no fault of the lessor or the department, the amount deposited will be forfeited to the allottee.

The Secretary of the Interior may reject any and all bids or disapprove any bid accepted by the superintendent. In that event the deposit made by the bidder will be returned.

Gasoline Prices Advance In California

LOS ANGELES, Dec. 20.—The Standard Oil Co. of California announced today that on Dec. 21 the tank wagon and service station price of gasoline would be increased 2 cents in southern California and 1 cent in San Francisco territory. This advance is taken by producers to mean there will be no cut in the price of crude oil in California at this time. It also means the clarifying of the gasoline price situation, making gasoline sell at 18½ cents in southern California including the 2 cent tax. No other companies have made any announcement yet, but there is no doubt of their adopting the same prices.

The American Petroleum Institute report covering operations in California during November shows a net decrease in all petroleum stocks on the West Coast. There was only a slight increase of heavy crudes and fuels, while refinable crudes were drawn upon slightly. There was an increase of almost 600,000 barrels in gasoline stocks brought about largely by largely increased refinery output.

The tanker charter situation is slightly worse, if that could be possible. In fact, no tankers are offered at less than $1.10 per barrel, for both dirty or clean bottom, West Coast to East Coast points. Two or three tankers the past ten days quoted prices ranging from $1.10 to $1.25 per barrel, with no takers. The price asked almost shut out the buyer who wanted to move in chartered tanker to the East Coast.

Shipments of petroleum products out of Los Angeles Harbor the past three weeks have been holding up well, even being slightly over November. During the three weeks ending Dec. 11, products moved out of Los Angeles harbor to Pacific foreign, Atlantic foreign and Atlantic domestic points as follows in barrels: crude, 776,547; fuel, 1,987,806; gasoline, 466,632; kerosene, 124,000; deisel, 145,216; tops, 53,175, and gas oil, 161,942. This was at an average per week, all products, of 1,238,439 barrels, slightly better than during November as a whole. The movement of fuel is especially encouraging, the movement being fairly well distributed.

Health Insurance

OLEAN, N. Y., Dec. 18—Metro Stations, Inc., Olean, which operates service stations in western New York and northwestern Pennsylvania, has enlarged its group insurance for employes to cover health and non-occupational accidents. Metropolitan Life Insurance Co. is the underwriter. H. M. Marcus is president of Metro.

Each employe covered will receive $10 a week if unable to work because of illness from any cause or injury received when off the job for a maximum of 26 weeks. The insurance program includes visiting nurse service and periodical distribution of pamphlets on disease prevention and health conservation.

Saving Crude Storage From Corrosion

NEW theories, both as to the causes of extreme corrosion in tanks storing crude with sulphur content, and for treatment to save tanks from loss through this action, are presented in a comprehensive report made by the Parkersburg Rig & Reel Co., tank manufacturers.

The timeliness of this report is shown by the fact that corrosion received considerable attention at the recent A. P. I. meeting. L. G. E. Bignell, engineer with the Parkersburg company, gave at that meeting some of the results of this company's investigation. This was published in Dec. 15 issue of National Petroleum News.

The Dec. 29 issue, however, will carry a more comprehensive article based on this report, in which methods of handling sulphur content crude to reduce corrosive action are gone into.

Late Tank Wagon Changes

SAN FRANCISCO, Dec. 21.—Standard Oil Co. of California today advanced the tank wagon and service station prices of gasoline from 1 to 2 cents throughout its territory. Southern California points were advanced 2 cents and San Francisco Bay region and points north 1 cent.

* * *

NEW ORLEANS, Dec. 21.—Previous to the 1 cent reduction on gasoline prices at New Orleans by the Standard Oil Co. of Louisiana, that city had been reduced 2 cents on Oct. 19, which makes the price there 13.5 cents at tank wagon without tax, 15.5 cents with tax, and service station price 18.5 cents, instead of 16.5 cents tank wagon and 19.5 cents service station including 2 cents tax, as shown in this week's issue in the tank wagon table at the back of the issue.

* * *

Correction

Information which arrived too late to insert into the refinery market tables, indicates that the price of Oklahoma Grade C natural gasoline on Dec. 20 should be 8½ to 8⅝ cents instead of 8⅝ cents flat.

* * *

Correction

Price of Gulf Coastal gas oil on page 101 of this issue should be 5¼ to 5⅜ cents a gallon.

Texas Properties Inspected

HOUSTON, Dec. 18.—Officials of the California Co., Rocky Mountain and Texas subsidiary of the Standard Oil Co. of California, are headed back to San Francisco after an inspection trip in the southwest. They visited Texas territory together and then left for various destinations. W. H. Berg went direct to San Francisco, A. L. Palmer made a visit to Montana en route home and M. E. Lombardi attended the A. P. I. meeting at Tulsa.

N. Y. Standard Details Revealed (*Continued from page 22*)

Standard of New York and its chief subsidiaries in the last five years.

Officers of the parent company as given in the listing application were: Henry C. Folger, chairman; Herbert L. Pratt, president; Charles F. Meyer, Howard E. Cole, Charles M. Higgins, Edw. R. Brown and John Barneson, vice-presidents; Frederick S. Fales, secretary; Richard P. Tinsley, treasurer; William J. Higgs and Arthur T. Roberts assistant treasurers, and Arthur T. Doremus and Benjamin D. Sutherland, assistant secretaries.

Directors were: Messrs. Folger, Pratt, Meyer, Cole, Higgins, Fales, Howard A. Wilkinson, Peter M. Speer, William B. Walker and Theodore Pratt, all of New York; Mr. Brown and Benjamin H. Stephens of Dallas, and Mr. Barnes of Burlingame, Calif.

Mr. Pratt said the company and subsidiaries had 43,500 employes and more than 26,000 stockholders.

Its funded indebtedness amounted to $61,956,500, divided as follows:

$20,000,000 Standard of New York 12-year 6½% gold debentures issued may 1, 1921, due May 1, 1933, but callable as a whole or in part at any interest date on and after May 1, 1928.

$13,500,000 Magnolia Petroleum Co. 4½ per cent serial gold debentures issued Feb. 16, 1925, in ten series of $1,500,000 each. One series falls due on each of the 10 Feb. 16's after the issue. The first to fall due was paid last Feb. 16.

$19,196,000 General Petroleum Corp. first mortgage sinking fund 5 per cent gold bonds issued Aug. 15, 1925, and due Aug. 15, 1940. Bonds are callable as a whole or in part on any interest date.

$9,260,500 General Petroleum Corp. 5-year 6 per cent gold notes issued April 15, 1923.

The consolidated balance sheets of Standard of New York, Magnolia and similar subsidiaries of Dec. 31, 1925, and of General Petroleum Corp. of June 30, 1925, its last report, give total assets of $639,364,636 and total net assets, exclusive of depreciation and depletion reserves, of $525,401,443. Net working capital amounted to $193,012,326.

Small Producers Will Oppose Repeal Of Anti-Trust Law, Says Gray

CLEVELAND, Dec. 20

AS spokesman for many Independent oil producers, W. H. Gray, president of the National Association of Independent Oil Producers, Tulsa, has told Secretary of the Interior Work, chairman of the Federal Oil Conservation Board, that Mid-Continent producers would look askance at repeal of the anti-trust laws to allow regulation of crude production.

Mr. Gray took this position in a letter to Secretary Work dated Dec. 14, in which he commented on the statement Secretary Work issued upon hearing of the action taken by the American Petroleum Institute at Tulsa in appointing two committees to study methods of regulating production.

"While some international corporations favor governmental control, the small producer is afraid of what might happen to him," Mr. Gray told Secretary Work. In concluding his letter he said, "We small producers know that 85 per cent of the oil produced in the United States, Venezuela, Colombia and Mexico, is produced by 12 companies, eight of which are controlled by 26 Broadway. They can always get the cooperation of the little fellow if they really want to curtail production. We believe that the industry should control itself and handle its own affairs without any interference by the state or federal governments."

Mr. Gray made the point, that, while the small producers would like to see some means for curtailing production to about current needs, they felt that repealing anti-trust laws, both state and federal, might place other restrictions upon their activities that might be more onerous.

In his statement from Washington, on behalf of the oil board, Secretary Work intimated that congress might be unwilling to modify the anti-trust laws in any way that seemed to nullify the purpose and force of the Sherman act.

Secretary Work offered the cooperation of the oil board in working with the industry on the problems now confronting it. Mr. Gray's letter in full read:

> I have just read your statement in the daily papers to this effect: "The federal oil conservation board is naturally gratified to know that the oil industry is responding so readily to the suggestions contained in the board's recent report to the president pertaining to national petroleum conditions. Insofar as proposed national legislation is concerned as applying to the development of oil fields and the curtailment of production"—also your statement that "modification of the anti-trust laws so that oil production may be more equitably controlled would seem to be more desirable if such legislation could be accomplished without nullifying the purpose and effect of the Sherman anti-trust laws."
>
> The oil industry as a whole has not yet made up its mind

Full Discussion is Vital to the Issue

THE American Petroleum Institute has a splendid opportunity to carry on and enlarge discussion within the oil industry on its vital problems in the work of the two Committees of Seven named by its directors at the Tulsa convention.

The industry has made some progress in the frank and open discussion of its problems the past few years, particularly since the Federal Oil Conservation Board made conservation of crude supplies an issue within the industry. It has learned that such full and free discussion is an aid to the solution of vital questions, rather than a detriment.

That knowledge is going to make it easier, the chances are, for the institute to bring about full discussion within the industry on the work undertaken by the two committees; one on proposing amendments to existing laws to allow cooperation among producers to hold back production during periods of a surplus of crude, the other on preventing waste of gas in oil pools by holding the gas in the sand, and thereby regulating production of that particular pool.

Thought Must be Unified

IF ever there was an issue before the oil industry where full knowledge and discussion on all its phases was necessary this is the one. Unless it is provided, unless the industry and the public as well realize that, whatever action is taken, whatever solution offered, it represents the thought of the entire industry and not of any group or division, it is likely the work of the institute in this matter will come to nought.

In spite of the discussion that has heretofore taken place on conservation, the industry at large has yet but a very vague conception of what the institute has undertaken in this program to regulate production of crude oil. Even those who have given a good deal of thought to the matter cannot foresee what this program, if carried out, will mean to the industry in the future, how it may affect the oil price structure, what it may mean in the relations of the industry with the public and with the politicians.

First, then, the institute and its committees face the problem of educating the industry further to the specific question at hand, its importance and the proposed methods of handling it. This in itself will prove no small job, but it appears one that must be undertaken. It can be carried on, for one way, by published statements by members of the committees and by leaders in economic thought in the industry and even outside, statements designed to stimulate thought and discussion by others.

Full Publicity Needed

EQUALLY important is the need for giving the industry full and complete information as the work of the two committees develops. That can be accomplished by giving the oil press access to all that goes on in committee meetings, by having those meetings open to the industry as far as possible.

If the arrangement of the work of the two committees allows, a schedule might be worked out which would allow the committees to hold open meetings in the various oil producing centers, where the committee members could tell their story direct to numbers of oil men and where they could give ear to suggestions from the floor. Correspondence from the oil industry might be invited at all times.

It must be realized by the industry that the task the institute has set up here for the oil industry is not one that can be settled in a matter of months. It is too big a problem to be worked out in a short time; too many different sides are to be brought up and presented for the consideration of the industry. Full and free discussion on the various points brought up will take time, a great deal of time; but it will make for a surer ultimate disposition of the problem.—V.B.G.

completely on the matter of repealing the anti-trust laws of the federal and state governments. As the spokesman of many Independent producers, I might say to you that while we would like to see some measure of conservation in the matter of curtailing and limiting production to the actual requirements of our own country, yet we fear that both federal and state governments would place other restrictions on us that would perhaps be more onerous than present anti-trust laws. There are numerous associations throughout the United States, many of which have never been consulted regarding what action would be best for the industry. While some international corporations favor governmental control the small producer is afraid of what might happen to him.

You are a man of great wisdom and I am sure that you are perfectly familiar with the fact that the federal government and the state governments will not give us any special privileges without reserving to the governments the power to control us. In other words, if these anti-trust laws are to be repealed the government will reserve the right to fix the prices and that is what the Independent producers throughout the great Mid-Continent field do not want.

I have spent all my life in Texas and Oklahoma and will say to you frankly that I do not believe that the people of Texas and Oklahoma would at any time in the near future consent to change the anti-trust laws and personally I would not myself consent to having it done unless it was by public consent and when I say public consent I mean without corruption of the ballot. If the people want it they are entitled to it and I am for them 100 per cent. It is not a matter of what the industry wants—it is a matter of what the people want. The time has arrived for all men in the oil industry to speak plainly.

Men like you and I know, as well as other men who have studied this problem, that it would be useless to propose a change in the federal anti-trust law, giving federal control and power over the industry, unless the states of Texas and Oklahoma would join in it and concede to the federal government this said power.

We as small producers know that 85 per cent of the oil produced in the United States, Colombia, Venezuela and Mexico is produced by 12 companies, eight of which are controlled by 26 Broadway. They can always get the co-operation of the little fellow if they really want to curtail production. We believe that the industry should control itself and handle its own affairs without any interference by the state or federal governments.

Very respectfully yours,
W. H GRAY.

W. P. R. A. Convention Set for March 3

Staff Special

TULSA, Dec. 20.—The Western Petroleum Refiners Association will hold its annual convention for 1927 on Thursday March 3. Members of the association are balloting by mail on the city where the meeting is to be held. Three cities are being considered, Chicago, Kansas City and Tulsa. It is expected that the referendum will be completed early in January.

Directors of the association decided at a recent meeting to hold only a one-day convention this year instead of the usual three-day meeting. The program will be designed to be of special interest to executives of refining companies and group meetings of department heads will not be held at convention time as has been the case in the past.

Leaders of the association have come to the conclusion that technologists, traffic managers, credit managers, sales managers and similar groups of department heads will accomplish more good by meeting oftener than once a year. For that reason a schedule of group meetings for these men is being worked out where they can discuss the problems peculiar to their work. These group meetings will be held in various parts of the field from time to time during the year.

The first group meeting for 1927 will be held at the Kemp hotel, Wichita Falls, on Jan. 17 and 18, for the benefit of plant superintendents, general superintendents and technologists of refineries. Announcement of this proposed meeting was made in the Dec. 15 issue of the National Petroleum News. A complete program of the meeting will not be available until about the first of January. Similar meetings probably will be held about four times during the year.

In view of the new departmental meetings planned by the association the program of the annual convention will be of chief interest to executives since it will consist of a discussion of problems of refinery management in its larger phases. Attendance is expected to be limited largely to executives. Present plans are to have the meeting convene early in the morning of March 3, to have luncheon served to those in attendance without an extended recess and to transact the business of the organization before adjournment that afternoon.

L. V. Nicholas to Speak

SIOUX FALLS, S. D., Dec. 18.—L. V. Nicholas, president and other officials of the National Petroleum Marketers Association, will speak at the annual convention of the South Dakota Independent Oil Jobbers Association Jan. 4 and 5 at the Carpenter Hotel here. Officers and directors for the ensuing year will be elected, according to J. H. Cumbow, now president.

On the program, besides Mr. Nicholas, will be, Raymond Shaw, of the N. P. M. A., who will speak on national advertising; and T. A. Peck, consulting engineer of the N. P. M. A. and chairman of the lubricating oils committee of the Independent Oil Men of America. Members of adjoining states' associations will also be on the program.

A banquet will take place the evening of Jan. 4.

KANSAS CITY, MO.—A Chicago office at 624 S. Michigan Ave., has been opened by the Securities Petroleum Co., with headquarters here. Edwin J. Freeman, formerly of Tulsa, is in charge at Chicago.

Humble Halts Refinery Building Program

Staff Special

TULSA, Dec. 20.—Humble Oil & Refining Co. has halted building operations on its proposed refinery in the Panhandle field of Texas which was to have been built near Isom. Nothing further will be done until spring, according to word received here today.

The company proposed to build a 10,000-barrel skimming and cracking plant which was to have been ready for operation early in the 1927 gasoline consuming season. Since the announcement of the program the company has decided to lay a 10-inch pipe line to the field which will handle around 30,000 barrels of crude per day. This line is expected to be ready for operation by June 1.

Delay in the refinery building program is taken to mean that the company will observe development of the field for several more months to determine whether a plant should be built at all. Some producers in the field have come to the conclusion recently that the production next summer may not reach the formerly anticipated peak of 300,000 barrels per day. This opinion has developed as a result of the increase in water being produced with the oil in some parts of the field.

E. F. Griswold of the Wilson Bros. Refining Co., Wichita Falls, who had planned a small plant in the Panhandle also has decided to wait until spring before proceeding. In recent weeks there have been no new building projects announced.

SHENANDOAH, IA.—Barron Coal & Metal Co. has recently entered the oil business and will market gasoline, kerosene and motor oils in immediate territory, according to Julius Barron.

Oklahoma City Test May Indicate Possible Oil Territory

By A. F. Hinton
N. P. N. Staff Writer

TULSA, Dec. 17

ALTHOUGH the J. I. Cromwell wildcat test near Oklahoma City has been drilled into water after an oil showing, and now looks like a failure, it must be regarded as an important development. It indicates a probability that oil in paying quantities will be found somewhere in the vicinity, and other wells undoubtedly will be drilled.

If it had been successfully completed for a well, it would have ranked among the most important discoveries of recent years in Oklahoma.

Although several wells have been drilled in the vicinity of Oklahoma City, none has ever had anything like a commercial showing of oil, and the district has been generally regarded as unfavorable. Surface structures are known to exist, but geologists generally speak of them as "red bed" structures, which bear little if any relation to sub-surface conditions. Also, it has always been thought the Oklahoma City area was in a large regional syncline and that sands productive in other parts of the state would be found there at prohibitive depths, if at all.

The past year, however, has seen territory heretofore looked upon as unfavorably as that around Oklahoma City proven for production. The state's largest field, Seminole, is located in an area that a few years ago was generally regarded as impossible from an oil production standpoint. Luther White, geologist for the J. A. Hull Co., in his address before the American Petroleum Institute, brought this out forcibly when he said:—"The limits of probable oil producing territory in Oklahoma have been extended farther beyond the limits of proven territory during the past year than at any time within the past five years. Today Oklahoma oil companies are covering more new territory with checkerboard acreage, intensive geological work, and wildcat explorations than seemed possible a few years ago. This is all because of the discovery of entirely new lines of structural uplift. The structural relations between anticlinal areas known in the past and certain discoveries within the past year are of such a nature as to bring enormous new areas within the limits of highly probable oil producing territory."

Theories Upset

MR. WHITE went on to say that the subsurface geology worked out through discovery and development of the Wewoka, Seminole, Earlsboro and Searight pools had upset all existing theories and belief, and that geologists have had completely to reorganize their conceptions of these subsurface conditions. The area in which these fields are located is now proven to be anticlinal in nature, rather than synclinal, as always had been the general idea heretofore. Before these fields were opened, it was generally believed that most Oklahoma producing sands were buried too deeply in the area to make drilling to them possible with existing equipment. Now it is known that the lowest productive horizons in the state can be reached at depths no greater than in other fields.

Now that Seminole and the other south fields have exploded these preconceived theories, there is good reason to expect that production will be found through a large belt of territory extending northwestward from Seminole, all of which has been considered as remotely possible for oil production, but which now must be considered as probable. An active leasing play is now going on throughout this area, comprising Pottawatomie, Cleveland, Oklahoma, McLain, and southern Lincoln counties. All this territory has been added to Oklahoma's likely-looking areas as a result of Seminole and the other fields in its vicinity.

Thus it is to be expected that production finally will be found in Oklahoma county and the Cromwell test may be regarded as a marker for important developments to follow. While it is apparently a failure at its present depth, it at least had a very substantial showing of oil in a location not less than 50 miles from the nearest production, and it may prove to be the pioneer which pointed the way to another major field. Also, it may result in Oklahoma City acquiring its long-desired status as an oil city.

6000 Acres Leased

THE Cromwell well, or, to give it its full title, Cromwell Oil & Gas Co. No. 1 Edwards, is located in the SWc NE SE of 10-12-3W, just two miles north of the state capitol building, and on the paved road to Guthrie. It was located by John R. Bunn, consulting geologist, of Ardmore, and John E. Van Dall, now a petroleum engineer and geologist with the Sinclair Oil & Gas Co., both of whom formerly were with the U. S. Bureau of Mines. They mapped the structure, and, with Joseph I. Cromwell, of Muskogee, assembled a block of about 6000 acres which they now hold intact.

Mr. Cromwell, originally a civil engineer, was convinced years ago that oil would be found in the south country, and after many vicissitudes, he drilled and completed what became the discovery well of the Cromwell field, in Okfuskee and Seminole counties. He afterward sold his holdings there to the Carter Oil Co. for a consideration reported as $3,000,000 and still owns a large percentage of the royalty in the field.

Oklahoma City has been in a fever of excitement ever since the well was first reported as showing for oil, as the denizens there had visions of a major oil field on their very doorstep, and of the city becoming the center of a great and new oil-producing area. Although their hopes are dashed for the moment, there is still a good chance that their ambitions will ultimately be realized. Last Sunday, when the well was "slopping over" with oil, it was estimated that 8000 people were on the ground, all trying to get on the derrick floor to see the oil for themselves. Traffic became congested on the paved highway and it became necessary to exclude all visitors from the well, so great was the crowd.

Standardized at 3513 Feet

THE Cromwell well was drilled with rotary tools down to 3513 feet, where they set the 8¼-inch casing and standardized. They reported nine separate gas showings in the upper formations, none of which apparently was of commercial importance. The oil showing which caused all the excitement was the first found in the well, and was picked up at 4383 feet. Present total depth of the hole is 4387½ feet, and its present status is a hole full of water, so that there was not more than four feet of oil sand.

It has been impossible to identify the sand in which this oil was found, as distance from production and lack of information of the territory between make it difficult to correlate. Oklahoma City geologists, however, appear to be in general agreement that it is somewhere near the lower Tonkawa horizon, which is found at around 2600 feet in the field of that name.

If this is correct, it is estimated that the Wilcox sand would be found some 1400 feet lower, or around 5800 feet. The well had about 1900 feet of practically solid red beds and had the last red shale at 2104 feet, this being about 15 feet thick. Somewhere about those depths, the hole probably entered the upper Pennsylvania formations. Before finding the oil sand, the well had a water sand from 4358 to 4374 feet, blue shale to 4376 feet, gray lime to 4383 feet and into the oil sand. Surface elevation of the well is approximately 1147 feet above sea level.

The oil found was of about 32 degrees gravity, and was black, not at all like

the light-colored, high-gravity crude found in the Tonkawa sand in the Tonkawa field. However, this is not conclusive evidence that the well is not in this horizon. As the well was cleaned out, the oil became purer, and the last samples of it were higher in gravity and more lively than those first taken. The well had a hole full of water when the oil was found, and it was necessary to underream the pipe down about 200 feet to shut off water before testing the sand. As there was practically no gas, the well never did flow, but it did slop over a number of times, the oil coming up ahead of the bailer, or when being agitated by the tools.

A. O. M. A. Exhibits But Once A Year

CHICAGO, Dec. 18—James Gilmore, secretary of the American Oil Men's Association, announced this week that his organization would hold only one equipment exhibit a year in the future. The decision came after a conference of the Executive Committee on Wednesday, Dec. 15 and has been published as a definite policy of the organization. The equipment show will be held at spring meetings only.

Mr. Gilmore says he has canvassed the sentiment of convention exhibitors and has found them uniformly of the opinion that spring shows are best for them. He adds, "The increasing number of state associations holding exhibits at their annual meetings has been taken into consideration also in this decision."

When he was secretary of the Michigan jobbers, Mr. Gilmore was first to hold an equipment exhibit at a state convention. The first precedent was in Grand Rapids in 1924. He says he is still of the opinion that it is worth while for equipment men to exhibit at state conventions, especially at annual meetings, because such gatherings attract many jobbers who seldom attend a national convention.

"Equipment exhibitors will have a pretty hard time keeping up with so many meetings," Mr. Gilmore says, "and I am glad to show them this consideration and the consideration of the A.O.M.A. by doing away with exhibitions at fall conventions."

October Gasoline Demand Decreases 9.8%

NEW YORK, Dec. 20.—Although gasoline consumption in 31 states, having gasoline tax or inspection laws, decreased 26,265,000 gallons in October, 1926, under September, or 9.8 per cent, October consumption of 373,560,000 gallons shows a gain of 30,063,000 gallons, or 8.8 per cent over October, 1925, according to American Petroleum Institute.

Gasoline consumption in the 10 months ended with October, 1926, totaled 3,491,994,000 gallons, which is an increase of 449,632,000 gallons, or 14.8 per cent, over the 10 months ended October, 1925 in the 31 states.

Winkler Development Goes Ahead; Oil Yields 19.6% Gasoline

HOUSTON, Dec. 18

SOUTHERN CRUDE OIL PURCHASING CO., whose recent acquisition of Winkler county properties of Westbrook et al. was previously reported in these columns, is proceeding with plans for development in the area adjacent to the Hendricks well in sec. 42, block 5, survey 21. The Southern Crude Oil Purchasing Co., which through the Pan American group is a branch of the Standard Oil Co. of Indiana, will drill four free wells within a radius of two miles of the Hendricks discovery of Westbrook et al. after which it will operate newly acquired properties for the joint account of itself and the former owners.

As previously reported, the Southern company took over the well, which is now making 110 barrels daily at total depth of 3005 feet, and 1410 acres of leaseholds, for $510,000 in cash and oil. In a second deal with Westbrook et al. it has acquired 17,000 acres of additional leaseholds in the Winkler county area.

Tankage Near Town of Pyote

SOUTHERN CRUDE is now building a 55,000-barrel steel tank near Pyote, Winkler county, also two tanks of 500 barrels' and one of 5000 barrels' capacity. It is expected soon to build a pipe line from Hendricks well production 20 miles to the Texas & Pacific railroad for tank car loadings of crude which will be shipped to the Destrehan, La., refinery of the Pan American.

Eventually the Pan American-Standard of Indiana interests, which also operate in west Texas through the Dixie Oil Co., Inc., direct subsidiary of the Standard of Indiana, may build a pipe line from the general area to the Texas Gulf Coast.

Oil Gravity 27.3° A.P.I.

THE Winkler county well now operated by the Southern company, but formerly carried in production reports as that of Westbook et al., is producing 27.3 gravity oil from a sandy lime pay at 2990-3005 feet. It has made about 5000 barrels of oil in its present condition with 535 feet of open hole at the bottom.

A sample of the oil shows it to be dark green with sulfur content of 1.85 per cent and 0.1 per cent b.s. The accompanying table gives refinery distillation results.

Refining Analyses of Winkler Co., Texas, Crude

Atmospheric Distillations — Volume charged—300 c. c. — Barometer

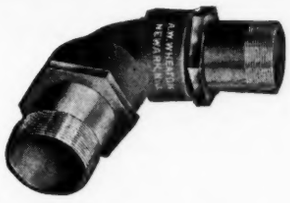
Temperature Cut, Degrees F.	Product	Vol. C. C.	A.P.I. Grav.	Yield Pct.
Up to 392°	Gasoline	59	52.6	19.6
392-527	Kerosene	56	38.4	18.8
Vacuum Distillation at 40 m. m.				
Up to 437°	Gas Oil	31.4	29.0	10.4
437-527	Light Lube dist.	38.5	25.8	11.9
527-572	Med. Lube dist.	22.4	23.1	7.4
A. P. I. Gravity of Residuum—Tar.				

Charge of 2500 c. c.; Gravity 27.3 A. P. I.; Viscosity at 70° F., 113; viscosity at 100° F., 67; sulfur 1.85%; color, green; Cold test, zero and flowing; b. s., 0.1%; water, trace.

Benzine		16.6%	Engler Dist.
Grav.	54.6		10% — 210
I. B. P.	130		20 — 240
E. P.	438		30 — 250
			40 — 270
Kerosene		10.7%	50 — 282
Grav.	41.3		60 — 300
Flash	156		70 — 318
Fire	176		75 — 332
			80 — 342
Gas Oil		5.5%	85 — 360
Grav.	34.0		90 — 384
Flash	185		95 — 404
Fire	210		E.P. — 438
Wax Distillate		18.6%	Stratford Dist.
Grav.	29.4		Yield O. H. 25.2
Flash	225		Grav. O. H. 50.6
Fire	260		
Visc.	44 at 100°		I.B.P. — 150
C. T.	Zero and flowing		10% — 236
			20 — 268
Bottoms		48.0%	30 — 288
Grav.	17.2		40 — 306
Flash	360		50 — 320
Fire	415		60 — 340
Visc.	120 at 210°		70 — 358
C. T.	12°		75 — 370
Color	Black		80 — 380
			85 — 390
			90 — 403
			95 — 420
			E.P. — 437

NEW YORK, Dec. 18.—Petroleum Heat & Power Co. with headquarters here and factory in Stamford, Conn., has bought a group insurance policy providing $800,000 protection for its employes. The company is bearing a large part of the cost of the insurance.

Employes participating in the group coverage, are insured for varying amounts. Individual insurance ranges from a minimum of $1,000 for employes whose annual wage is $1,500 or less to $5,000 for employes whose annual salary is $4,500 or more.



Double Swing Joint

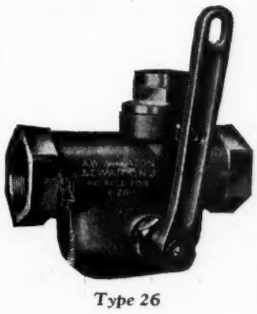
Type 30

Tank Truck Faucet

Single Swing Joint

Type A

Tank Truck Faucet



Type 26

Loading Valve

Type 24

Tank Truck Faucet

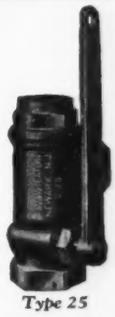
They're Money-Savers
—*every one*

Here are a few Wheaton Products —money savers, every one. That's what users of Wheaton Faucets, Valves, Nozzles, Joints, etc., have learned about these and every other article bearing the name Wheaton. And the reason is simple—it's the *quality* that is built into them. Ask any man who is qualified by knowledge of equipment and he will tell you that Wheaton Products are known throughout the entire oil industry as the *Quality Products* of their field. And, if their first cost is higher than that of other makes—which is seldom the case —Wheaton Products make up the difference many, many times by their long life of economical service. Send for catalog today.

A. W. WHEATON BRASS WORKS, NEWARK, N. J.

Type B

Tank Truck Faucet



Type 25

Loading Valve

Type 35 Non-Drip

Lubricating Faucet

Wheaton

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended Dec. 17 (By Telegraph)

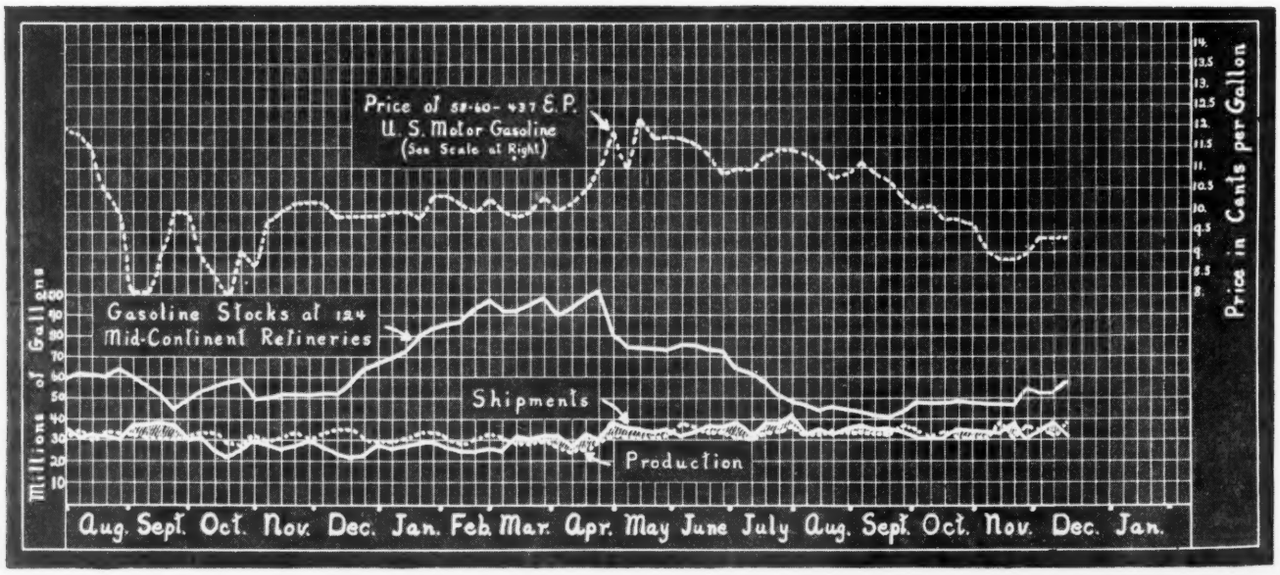
	Kansas	Oklahoma	North and Cent. Texas	North La.-Ark.	Total Week Ended Dec. 17	Total Week Ended Nov.19
Plants Reporting	23	46	41	14	124	124
Crude Cap. (Bbls.)	98,200	165,900	144,300	53,700	462,100	262,100
Cracking Capacity	21,000	45,800	15,750	20,200	102,750	102,750
Da. Av. Crude Runs	58,242 — 2.1	104,894 + 6.3	69,428 — 0.3	57,717 + 3.0	290,281 + 2.3	286,179
Da. Av. Other Oils	4,583 —26.9	—29	5,918 — 0.4	1,609 +18.	12,076 + 7.8	10,961
GASOLINE—Gallons						
Stocks Dec. 10	9,481,731	30,750,094	8,847,669	2,452,363	51,531,857	48,971,819
Prod. 12-10 to 12-17	8,614,369 — 6.0	16,359,399 +16.4	8,289,959 + 6.1	3,673,251 + 8.5	36,936,978 + 7.3	36,887,089
Ship. 12-10 to 12-17	7,400,532 —16.8	13,082,498 —18.4	7,896,113 + 1.0	3,489,864 — 3.1	31,869,007 —12.3	37,163,876
Stocks Dec. 17	10,695,568 +12.8	34,026,995 +10.7	9,241,515 + 4.5	2,635,750 + 7.5	56,599,828 + 9.8	48,695,032
Ratio Sales to Prod	85.9%	80.0%	95.2%	95.0%	86.3%	100.8%
KEROSENE—Gallons						
Stocks Dec. 10	3,151,831	5,428,366	2,039,714	644,904	11,264,815	10,588,258
Prod. 12-10 to 12-17	1,923,638 +11.4	1,987,793 + 5.0	1,809,357 + 2.3	533,789 + 0.1	6,254,577 + 5.6	6,179,224
Ship. 12-10 to 12-17	1,396,952 —33.9	2,033,238 + 1.4	2,130,370 + 1.0	582,637 +61.4	6,143,197 — 6.8	5,312,989
Stocks Dec. 17	3,678,517 +16.7	5,382,921 — 0.8	1,718,701 —15.7	596,056 — 7.6	11,376,195 + 1.0	11,454,493
Ratio Sales to Prod	72.6%	102.3%	117.7%	109.2%	98.2%	86.0%
STOVE DISTILLATE—Gallons						
Stocks Dec. 10	5,184,093	5,560,793	1,035,952	265,534	2,046,372	14,368,868
Prod. 12-10 to 12-17	817,772 —29.5	1,002,476 +48.3	233,772 —31.3	77,738 —36.3	2,131,758 — 7.2	1,622,070
Ship. 12-10 to 12-17	1,456,855 — 7.7	1,272,005 + 5.6	374,324 +25.1	85,116 —18.4	3,188,300 + 0.1	1,859,558
Stocks Dec. 17	4,545,010 —12.3	5,291,264 — 4.8	895,400 —13.6	258,156 — 2.8	10,989,830 — 8.8	14,131,380
Ratio Sales to Prod	178.1%	126.9%	160.1%	109.5%	149.6%	114.6%
GAS OIL—Gallons						
Stocks Dec. 10	5,309,798	30,983,654	8,790,665	2,973,837	48,057,954	52,660,880
Prod. 12-10 to 12-17	1,359,093 — 7.3	2,390,763 +10.7	2,056,554 —12.8	2,862,147 + 9.1	8,668,557 + 0.7	7,402,264
Ship. 12-10 to 12-17	1,838,449 +12.0	1,708,624 + 2.6	1,698,579 +35.9	2,906,361 + 2.2	8,152,013 +10.13	8,261,192
Stocks Dec. 17	4,830,442 — 9.0	31,665,793 + 2.2	9,148,640 + 4.1	2,929,623 — 1.5	48,574,498 + 1.1	51,807,952
Ratio Sales to Prod	135.3%	71.5%	82.6%	101.5%	94.0%	111.6%
FUEL OIL—Gallons						
Stocks Dec. 10	12,241,001	66,086,679	12,525,139	9,021,341	99,874,160	108,922,632
Prod. 12-10 to 12-17	5,382,864 — 2.7	7,180,961 + 9.9	8,228,904 + 2.9	9,421,256 + 4.9	30,213,985 + 4.0	30,107,956
Ship. 12-10 to 12-17	5,803,214 — 8.3	8,029,533 + 1.1	8,298,003 + 7.9	9,027,936 — 0.7	31,158,686 + 0.3	31,603,226
Stocks Dec. 17	11,820,651 — 3.4	65,238,107 — 1.3	12,456,040 — 0.6	9,414,661 + 4.4	98,929,459 — 0.9	107,427,362
Ratio Sales to Prod	107.8%	111.8%	100.8%	95.8%	103.1%	

Gasoline Produced by Various Methods, Week Ended Dec. 17

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	5,996,904	69.6	10,915,458	66.7	6,868,853	82.9	1,355,950	36.9	25,137,165	68.1
Cracked	2,055,211	23.9	4,477,773	27.4	1,319,802	15.9	1,982,099	54.0	9,834,885	26.6
Natural	562,254	6.5	966,168	5.9	101,304	1.2	335,202	9.1	1,964,928	5.3
Total	8,614,369		16,359,399		8,289,959		3,673,251		36,936,978	

+ or — columns are % change over previous week.

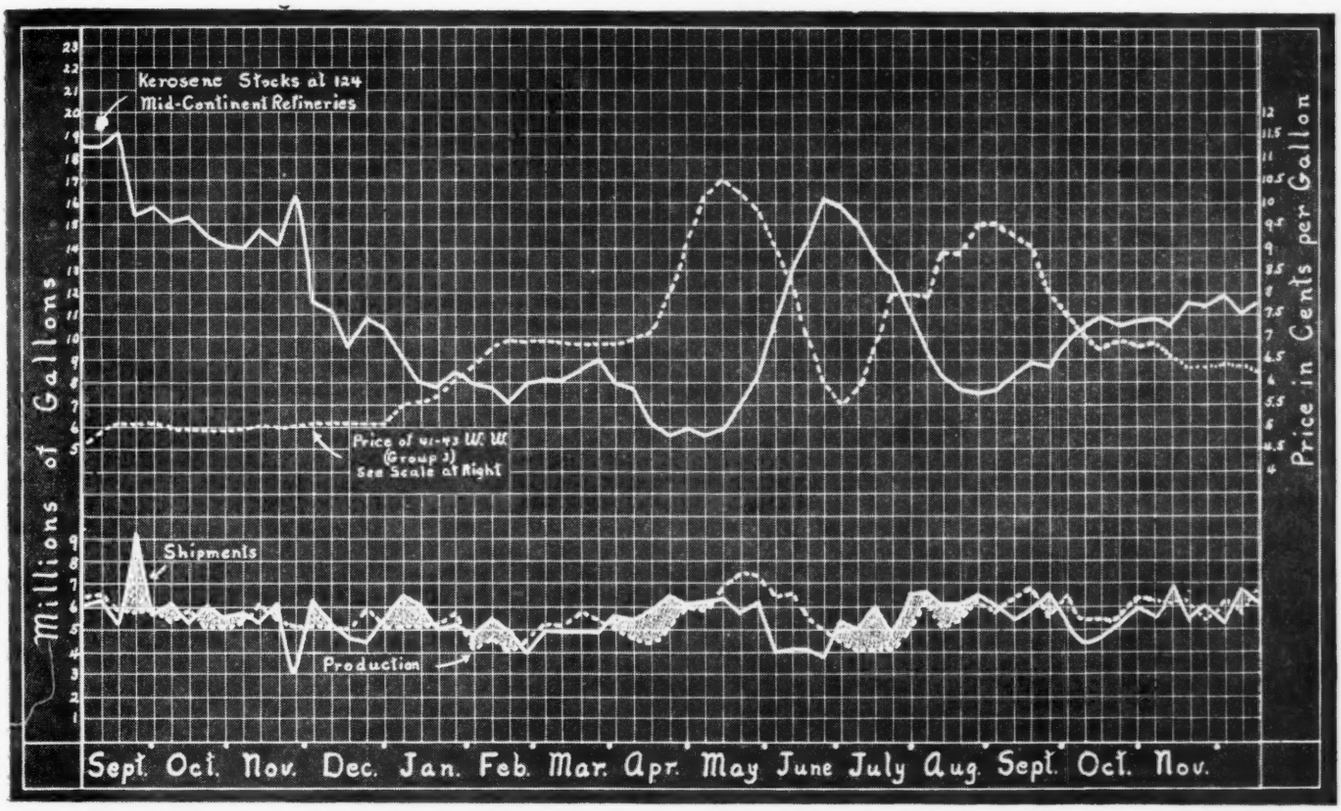
GASOLINE


Price of 58-60- 437 E.P.
U. S. Motor Gasoline
(See Scale at Right)
Gasoline Stocks at 124
Mid-Continent Refineries
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan.

Barometer of Mid-Continent Refinery Market— Week Ending Dec. 17

Charted Course of Prices, Production, Shipments, Stocks of Principle Refined Products, Week by Week, From Reports Made by 124 Plants to National Petroleum News

KEROSENE


Kerosene Stocks at 124 Mid-Continent Refineries
Price of 41-43 W. W. (Group 2) See Scale at Right
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.

Cold Decreases Gasoline Demand in Mid-Continent

Staff Special By Telegraph

TULSA, Dec. 21

SEVERELY cold weather throughout the territory served by Mid-Continent refiners caused a sharp reduction in gasoline shipments in the week ended Dec. 17.

Reports gathered by National Petroleum News from 124 plants with crude capacity of 462,100 barrels a day, showed a reduction in shipments of 4,500,000 gallons or 12.3 per cent to 31,869,007 gallons. In the week ended Dec. 10 the same group of refineries shipped 36,342,474 gallons, only about 4,000,000 gallons less than the 1926 peak.

Apparently expecting a continuance of the heavy winter gasoline business refiners increased their crude runs 6500 barrels to a daily average of 290,281 barrels and increased their total gasoline production 2,500,000 gallons to 36,936,978 gallons. The big fall in shipments caused an increase in stocks of 5,000,000 gallons. Reserves on Dec. 17 totaled 56,599,828 gallons which was almost identical with the stock report of the same group of plants for Dec. 18, 1925. At that time stocks were 56,743,949 gallons.

Kerosene shipments almost balanced production, and stocks increased only 112,000 gallons at all plants. Kansas refiners added to their stocks 500,000 gallons during the week but all other groups in the field showed minor reductions.

The heavy drain on stove distillate stocks continued. Shipments were 3,188,300 gallons and production 2,131,758. Reserves fell 1,000,000 gallons to 10,989,830 gallons. On Dec. 18, 1925, stocks of stove distillate at the same plants were 17,178,642 gallons, more than 6,000,000 gallons greater than at present.

Fuel oil stocks were reduced in all fields except north Louisiana and Arkansas. In that area the increase in reserves was a little less than 400,000 gallons. In the field as a whole production was increased 1,000,000 gallons or 4 per cent to 30,213,985 gallons while shipments were unchanged at 31,158,686 gallons. Total stocks at the end of the week were 98,929,459 gallons. Stocks of gas oil were increased 500,000 gallons at all plants to 48,574,498 gallons.

Standard Buys Michigan "Co-op"

IONIA, Mich., Dec. 11.—The entire business of the Ionia Co-operative Oil Co., distributor of Sinclair products, was sold Nov. 8 to the Standard Oil Co. of Indiana.

The sale included two bulk and ten service stations, two garages, about 100 leased pumps, and 300,000 gallons' storage. A. M. Burnett who was manager of the Ionia company, remains as manager of the company for Standard.

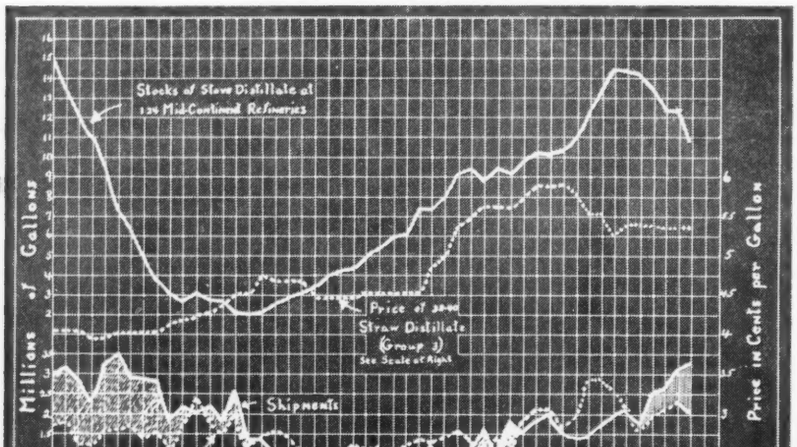
Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Dec. 17. Change in stocks figured from Nov. 19.

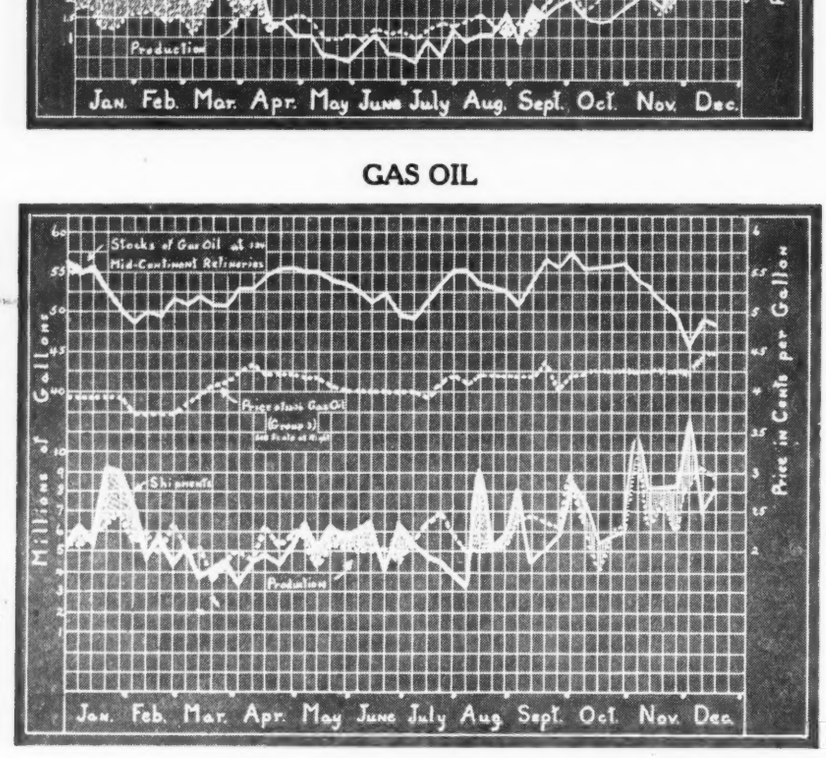
	Gallons
Gasoline	
Production	140,647,412
Shipments	132,742,616
Net change in stocks	+7,904,796
Ratio sales to production	94.4%
Kerosene	
Production	24,132,729
Shipments	24,211,027
Net change in stocks	—78,298
Ratio sales to production	100.3%
Stove Distillate	
Production	8,281,249
Shipments	11,422,799
Net change in stocks	—3,141,550
Ratio sales to production	137.9%
Gas Oil	
Production	32,139,915
Shipments	35,373,369
Net change in stocks	—3,233,454
Ratio sales to production	110.1%
Fuel Oil	
Production	117,699,303
Shipments	126,197,206
Net change in stocks	—8,497,903
Ratio sales to production	107.2%

Barometer of Mid-Continent Refining Market—Week Ending Dec. 17

STOVE DISTILLATE


Stocks of Stove Distillate at 120 Mid-Continent Refineries
Price of 28-40 Straw Distillate (Group 2) See Scale at Right
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

GAS OIL


Stocks of Gas Oil at 120 Mid-Continent Refineries
Price of 36-40 Gas Oil (Group 3)
Shipments
Production
Millions of Gallons
Price in Cents per Gallon
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

FUEL OIL

Stocks of Fuel Oil at 120 Mid-Continent Refineries
Price of 26-36 Fuel Oil (Group 3)
Shipments
Production
Millions of Gallons
Price in Dollars per Barrel
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Truck & Bus

NEW YORK, Dec. 18.—Automotive Industries this week says:

"The closing weeks of 1926 will see a steady dwindling of production activity at the automobile manufacturing centers. In the main, factories are holding work to the lowest point possible without laying off large groups of workers. This policy will be followed through December and a considerable group of factories will close for Christmas holidays, taking this opportunity for inventory and for factory overhaul.

Shipments to dealers are being held to a minimum by practically all companies because of the increased stocks of new cars now in dealers' hands. The abrupt slackening in the retail movement starting in late October has caused an accumulation of cars at retail outlets considerably in excess of this season last year. This accumulation will be reduced in the coming month through manufacturers holding back shipments.

Though there is no question of the year's output setting a new record, it is unlikely that the figure for 1925 will be greatly exceeded if the Ford company does not resume on a fairly active basis. The Ford curtailment has seriously affected output of low priced cars, and cars of this class normally make up the bulk of production.

In the medium and higher priced fields both production and sales are on a much better level. This has been true all year, and will be emphasized in the annual report on valuation of shipments. As compared with other years 1926 will show even more advantageously from a price-class viewpoint than from that of units produced.

Steady buying of trucks and buses is holding the monthly unit totals high, reflecting that the general business condition is good. There will be little reduction in truck units in December as compared to the decline in passenger cars.

Leases Ohio Jobber's Business

WASHINGTON C. H., Ohio, Dec. 18—A five-year lease of the business of the Powell Auto Co., oil jobber and marketer here, has been taken by the Louisiana Oil Refining Corp., Shreveport, La.

The business will be taken over on Jan. 1. Option to purchase after the five years is included in the contract. Earl Powell, proprietor of the Powell company, will be retained as manager in the Washington C. H. district.

The Powell company started in business about 10 years ago and operates four service stations, trucks and garage here. Its bulk storage plant on south Main St. consists of 17 tanks of some 400,000 gallons capacity.

The Louisiana company recently began marketing in Ohio territory and now has distributing plants at Hillsboro, Middletown, Wilmington, Hamilton, Georgetown, Columbus, Cincinnati and other Ohio points.

New Oil Reserves Already Proven Will More Than Meet Our Need

By L. G. Huntley
Huntley & Huntley, Geologists, Pittsburgh

MR. HUNTLEY in the accompanying article makes the point that there has been proved in the United States and in foreign territory where the oil is immediately available to United States markets, far more production than is required to supply the estimate given by another writer as the total new oil needed over the next three years. While the estimate referred to is based on the 1925 demand and no account is taken of normal increase in consumption, ample provision for this factor lies in the huge excess of Mr. Huntley's estimate of oil to be had from fields now in the making over the estimated amount required.

A criticism that may be raised is that not all of the foreign reserves cited will come into the United States markets. Trinidad, of course, will not send a great part of its oil into this country and a large part of the Venezuelan output at present goes into European markets. The other two South American republics, Colombia and Peru, will, of course, send most of their oil either to the United States or Canada. Mr. Huntley's estimate of new domestic reserves is, however, more than equal to the estimated demand.—Editor.

THERE has been an increasing output of prophecies as to an impending oil shortage in the United States. The tradition may have been established in China based upon the declining output of certain medicinal oil springs in Szechwan; or perhaps in the Land of Oleum based upon the relative scarcity of bulls. Up to the present time, however, the decrease in the number of bulls in the woods has been partly made up by an increase in the number of prophets who have taken to the groves, naked except for thin mantles of qualifications; watching one another from behind trees and welcoming each new arrival with raucous laughter. The result is highly diverting to the oil man of the old school, who has learned more about the ways of the man with the drill than about curves, logarithmic or otherwise. The moral always seems to be careful of that loose end of the curve.

As the present writer has dodged from tree to tree in those groves, losing shreds of his garment each year, he recently ran across an interesting pamphlet*. This gives an estimate of the amount of oil from new resources which must be brought in each year to make up for the decline in that now derived from present wells and the drilling up of present proven acreage; to supply an annual demand equal to that of the year 1925 (750,000,000 bbls.). This paper was published May 11th, 1926, but presumably does not include data much later than the first of the present year. The figures for the following three years are as follows:

	Barrels Daily	Barrels Annual
1926	145,000	52,925,000
1927	417,000	152,205,000
1928	693,000	252,945,000
Total		458,075,000

Proven Reserves Adequate

WITH an admittedly myopic vision, and caution beyond his years, the present writer wishes to limit his statements to measurable values, but believes that there is today (November, 1926) enough new oil reserves which have been shown to exist during the past eight or nine months, to more than supply this deficiency. These may be listed as follows:

	bbls.
Texas Panhandle:	
50,000 acres proven at 5000 bbls. per acre (est.) May possibly yield more than	200,000,000
Seminole Pool, Okla.: Estimated by some as large as Cushing	300,000,000
Gulf Coast: With the discovery of half a dozen new salt domes by geophysical methods, and the results of deeper drilling at Spindletop, who is not willing to admit that the equivalent of at least one new major salt dome pool may be discovered within the next two years	25,000,000
Spindletop Deep Pay:	25,000,000
South America:	
Trinidad — Estimated increase over 1925, for 1926-7-8, due to increased drilling activity, principally in proven areas..	6,000,000
Peru—Same	6,000,000
Colombia—Merely a matter of pipe line capacity 1926-7-8	30,000,000
Venezuela—3 new pools discovered during 1926, close to water transportation, with three partly drilled areas awaiting transportation. Estimated total increase 1926-7-8, over 1925 rate	90,000,000
Partial total of new oil in sight available for U. S. markets up to the end of 1928	682,000,000

Oil Now Available

THESE reserves are immediately available, once drilling and transportation is furnished, with the exception of the predicted new Gulf Coast pool. While they may not be drilled up rapidly enough in some cases to throw all this oil on the market during the period in question, the history of oil operations in the past has been that production proceeds as quickly as is physically possible under conditions of transportation and drilling.

In other words, there has been discovered or made available within the past eight months enough new oil to equal a full year's demand, added to previously proven reserves and old production. The bulk of this new oil is potentially available to the market during the coming two years.

The large back-log of settled production which exists at the present time, plus these new reserves, it would seem must inevitably postpone any permanent or large increase in crude prices for the next two or three years. Fortunately, drilling in the Panhandle and in Venezuela is proceeding relatively slowly, due to a variety of causes. It could, however, be speeded up in case of a real necessity. And one or two more new pools of major size within the next 30 months would be disturbing.

Last spring the size of the deep reserves at Spindletop could not have been predicted, nor could the present results at Seal Beach in California. West Texas is monthly adding to the available reserves.

We shall probably still be using automobiles in 1929-30.

*L. C. Snider, "The Petroleum Resources of the U. S." Acad. Pol. Sci., N. Y., 1926.

Oil Stocks Show Gain During November

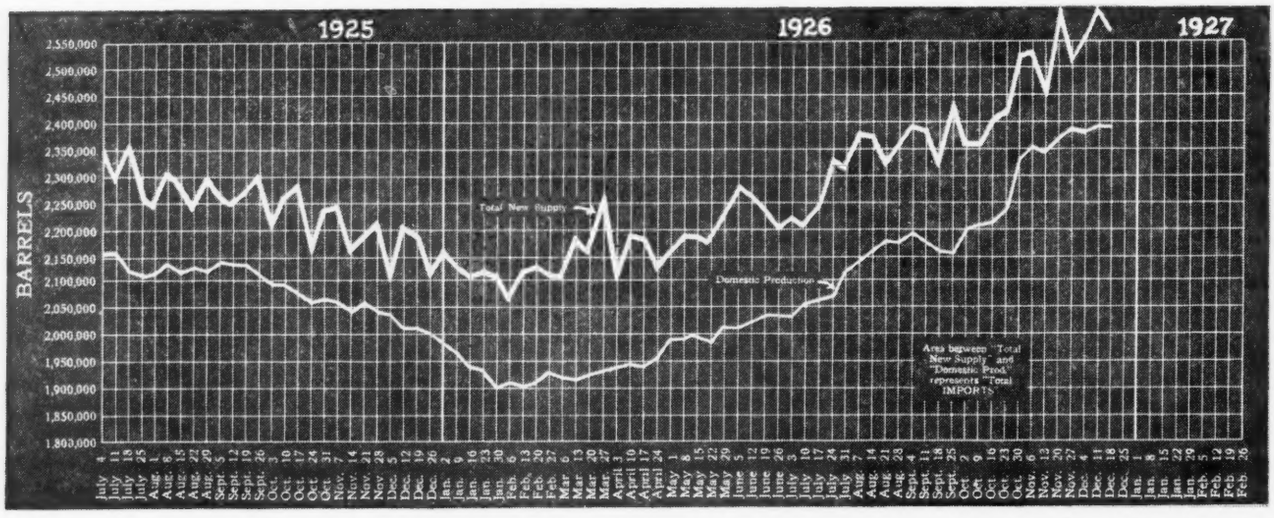
NEW YORK, Dec. 18.—An increase of approximately 2,300,000 barrels in pipe line and tank farm gross domestic crude stocks east of the Rockies during November, covering the entire operating capacity in that territory, is indicated in the preliminary report of the American Petroleum Institute. October official figures of the U. S. Bureau of Mines showed a decrease of 500,000 barrels under September.

Refinery stocks of crude in November decreased nearly 2,000,000 barrels east of the Rockies, as compared with a decrease of 999,000 barrels in October.

Refined oils' stocks east of the Rockies during November show a net decrease of about 1,150,000 barrels as compared with a net decrease of 900,000 barrels in October.

Gasoline stocks increased approximately 1,300,000 barrels in November, east of the Rockies, as compared with gain of 365,000 barrels in October. Kerosene stocks decreased about 900,000 barrels, and gas and fuel oil stocks decreased 700,000 barrels. Lube oil stocks increased about 110,000 barrels.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates given below, as compiled by American Petroleum Institute.

Production Summary

	Dec. 18	Dec. 11
Production east of Rockies	1,736,600	1,740,550
Decrease		3,950
Total production in U. S.	2,396,700	2,396,250
Increase		450
Crude oil imports	183,714	263,714
Decrease		80,000
Total crude supply	2,580,414	2,659,964
Decrease		79,550

OKLAHOMA

	Dec. 18	Dec. 11
North Braman	18,550	22,600
South Braman	5,000	4,800
Blackwell	3,700	3,700
Hubbard	4,750	4,400
Thomas	1,850	2,250
Tonkawa	27,450	30,000
Garber	21,650	22,900
Burbank	47,000	44,650
Osage, outside Burbank	35,200	35,000
Watchorn	3,450	3,700
Cushing	21,450	21,450
Yale Jennings	12,650	12,700
Davenport	4,900	5,200
Bristow-Slick	27,200	27,250
North Okmulgee	17,500	17,500
Lyons-Deaner	4,200	4,200
Stroud	1,900	2,000
Cromwell	13,800	14,650
Papoose	8,600	9,100
Wewoka	25,150	24,600
Seminole	133,350	130,350
Duncan district	6,950	7,000
Graham	8,800	8,900
Fox	1,900	2,050
Healdton	15,000	15,250
Scholem-Alechem	10,000	9,000
Hewitt	10,700	10,900
Others	68,550	68,550
Total Oklahoma	561,200	564,650
Decrease		3,450

KANSAS

Greenwood County	45,200	44,850
Florence-Covert	1,900	1,900
Peabody-Elbing	4,150	4,200
Eldorado-Towanda	13,400	13,400
Augusta-Fox-Bush	4,950	4,950
Rainbow Bend	3,600	3,700
Russell	4,100	4,200
Churchill	12,900	12,250
Others	29,550	29,700
Total Kansas	119,750	119,150
Increase		600

NORTH LOUISIANA

Homer	5,350	5,400
Haynesville	8,550	8,600
Caddo, light	10,550	10,300
Caddo, heavy	4,900	4,950
De Soto, Red River	4,200	4,200
Elm Grove	600	600
Bellevue	1,750	1,700
Cotton Valley	6,750	6,750
Urania	12,150	13,400
Total N. Louisiana	54,800	55,900
Decrease		1,100

ARKANSAS

	Dec. 18	Dec. 11
El Dorado	6,450	6,450
Smackover, light	13,000	13,000
Smackover, heavy	109,750	110,750
Stephens	1,500	1,500
Nevada	1,950	2,000
Others	300	....
Lisbon	6,000	6,450
Total Arkansas	138,950	140,150
Decrease		1,200

NORTH TEXAS

Burkburnett	14,650	14,650
Electra	17,000	16,950
Iowa Park and K-M-A	4,900	4,950
Wilbarger	16,800	16,300
Montague-Cooke counties	12,850	12,650
Hutchinson County	144,900	146,200
Balance Panhandle	13,650	13,000
Archer County	35,600	35,600
Others	1,300	1,300
Total North Texas	261,650	261,600
Increase		50

EAST CENTRAL TEXAS

Mexia	11,250	11,300
Currie	750	800
Richland	1,450	1,450
Corsicana-Powell	24,200	24,400
Wortham	6,050	6,100
Nigger Creek	11,250	11,250
Total East Central Tex.	54,950	55,300
Decrease		350

WEST CENTRAL TEXAS

Stephens County	11,350	11,200
Eastland County	6,200	6,100
Desdemona	1,750	1,750
Young County	8,950	8,900
Brown County	17,450	17,250
Palo Pinto County	450	450
Callahan County	3,900	3,750
Shackleford County	15,250	14,950
Reagan County	29,500	29,000
Coleman County	500	500
Crane and Upton Counties	22,700	22,900
Mitchell-Scurry Counties	3,750	3,700
Others	7,000	6,400
Total West Cen. Tex.	128,750	126,850
Increase		1,900

SOUTHWEST TEXAS

Luling	18,250	18,350
Laredo District	16,300	16,200
Somerset	1,900	1,950
Lytton Springs	3,100	3,150
Piedras Pintas	500	450
Others	600	600
Total Southwest Texas	40,650	40,700
Decrease		50

GULF COAST

Goose Creek	7,550	7,600
Hull	20,650	21,200
Saratoga	1,250	1,200
Blue Ridge	3,350	3,900
Damon Mound	850	850
Batson	1,700	1,750
West Columbia	9,350	9,750
Humble	4,400	4,400
Pierce Junction	4,850	6,700
Sour Lake	4,950	5,400
Spindletop	92,700	89,850
Orange County	6,250	6,650
Edgerly	550	550
Evangeline	1,400	1,400
Vinton	5,700	5,650
Lockport	3,350	3,200
South Liberty	5,600	4,600
Big Creek	1,250	1,350
Boling	2,500	2,450
Others	3,550	2,850
Total Gulf Coast	181,750	181,300
Increase		450

ROCKY MOUNTAIN

Wyoming

	Dec. 18	Dec. 11
Salt Creek	41,250	40,150
Grass Creek	2,800	3,050
Elk Basin	550	750
Big Muddy	2,800	3,100
Lost Soldier	4,250	5,050
Rock River	2,650	2,900
Teapot Dome	650	950
Lance Creek	700	700
Others	1,750	1,900
Total Wyoming	57,400	58,550
Decrease		1,150

Montana

Cat Creek	2,500	2,600
Sunburst	9,000	9,000
Others	150	200
Total Montana	11,650	11,800
Decrease		150

Colorado

Moffat (Craig)	3,250	3,300
Fort Collins	3,400	3,800
Florence	450	450
Others	600	600
Total Colorado	7,700	8,150
Decrease		450

New Mexico

Artesia	2,300	2,300
Hogback	700	700
Table Mesa	300	300
Rattlesnake	4,100	2,650
Total New Mexico	7,400	5,950
Increase		1,450
Total Rocky Mountain	84,150	84,450
Decrease		300

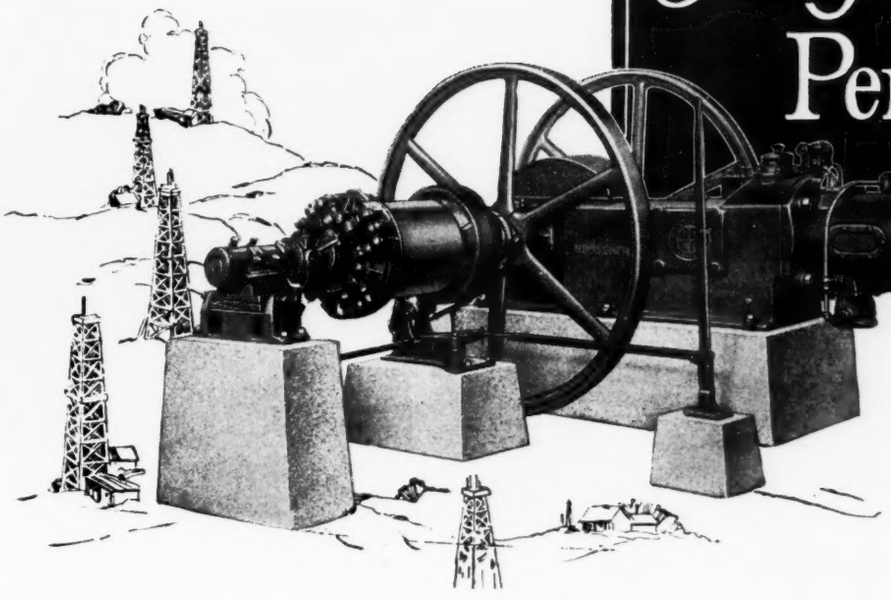
CALIFORNIA

Santa Fe Springs	44,500	45,000
Long Beach	95,000	94,500
Huntington Beach	98,000	90,000
Torrance	26,500	26,500
Dominguez	19,000	19,000
Rosecrans	13,500	13,500
Inglewood	39,500	39,500
Midway-Sunset	91,000	92,500
Ventura Avenue	52,400	54,700
Seal Beach	8,700	8,000
Others	172,000	172,500
Total California	660,100	655,700
Increase		4,400

EASTERN

(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	110,000	110,500
Decrease		500

Judge it by it's Performance



IT is performance on the job that determines the dollar for dollar value of an oil field engine, and it's on this basis that we want you to judge for yourself whether the Bessemer Oil Field Engine isn't by far the best you can buy.

Of course, it is Bessemer's outstanding features of construction that make their performance so remarkable—that and the quality of the materials and workmanship that go into them to insure long life. No engine can out-perform its weakest part, and on the Bessemer *every* part is built to stand up under the longest, hardest service to which it can be subjected.

See some of these engines in service, and you will quickly understand why it will out-work and out-perform any other engine of its type.

THE BESSEMER GAS ENGINE COMPANY
70 York Street ∴ ∴ Grove City, Pa.

Sixteen outstanding features make the new Bessemer YOUR ideal oil field engine—

1. Entirely enclosed bed plate.
2. Air valve on top of bed plate.
3. Efficient Bessemer governor.
4. Wico ignition.
5. Sight feed glass through which crankcase oil continually circulates.
6. 6-inch exhaust on 25, 30 and 35 H.P. engines.
7. Adjustable and removable main bearings.
8. Counterweights on crankshaft, giving perfect balance on crank.
9. Splash lubrication to crank, crosshead and main bearings.
10. Large, quickly removed side plates give easy access to adjustable crosshead.
11. Bored crosshead with adjustable bronze shoes.
12. Outside bolting, cylinder readily removed.
13. Easy to clean water jacket. An easily removed plate on either side of cylinder permits quick access to water jacket space.
14. Force feed lubrication operating from same eccentric as ignition.
15. Cleanout type cylinder head. Entire front of cylinder head removable, exposing water jacket.
16. Over-strength construction in *every* part, insuring extra years of service.

BESSEMER

BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

Pipeline Outlets Provided in Area Outlying Hurdle District

HOUSTON, Dec. 20

THE work of providing crude oil outlets for production in territory outlying from the Hurdle district of Crane and Upton counties, in the west Texas plains area, goes merrily ahead. The latest step in this connection is the construction by the Humble Pipeline Co. of 20 miles of line from its McCamey facilities southward to the Yates ranch discovery well of the Mid-Kansas Oil & Gas Co., and the Transcontinental Oil Co., in sec. 60, block 1, I&GN survey, eastern Pecos county.

Previously the Humble had begun taking oil from the McElroy ranch pool, along the Crane-Upton boundary, north of Hurdle district, which is being developed as a unit property by the Gulf Production Co.

Other crude oil buyers in the territory in and around the Hurdle district are the Marland Pipeline Co., and the Southern Pipeline Co., the last mentioned affiliated with the Standard Oil Co. of Indiana through companies of the Pan American group. Roxana Petroleum Corp., and The Texas Co., although making no outside purchases, have short lines in the Hurdle district to tank car loading racks for the purpose of making railroad shipments of controlled crude.

The Humble has surveyed ground for one 55,000-barrel steel storage tank near the Yates well, which came in for 100 barrels initial production at total depth of 997 feet recently; also the Humble is building seven more 55,000-barrel tanks near the town of McCamey in southwestern Upton county, where its Hurdle district pipeline pumping station is located.

Pipeline Facilities Increased

SOME time ago the Humble began building a pipeline from the Hurdle area to its Kemper tank farm near Big Lake, in southern Reagan county, where its main west Texas storage base is located. The Humble also went ahead with work of increasing the capacity of its pipeline from Kemper station to Comyn, in connection with its trunk system at Comanche county, a distance of 195 miles. The looping of this part of the system increases the line's carrying capacity to 40,000 barrels of crude daily.

More recently the Humble Oil & Refining Co. has begun work on a topping plant refinery at McCamey, from which point it will make shipments of fuel oil on its recently announced contract with the Southern Pacific railroad for delivery at Alpine. The contract, which runs over a period of five years, covers large deliveries of fuel; the total quantity, however, not being announced.

Fuel moving to the Southern Pacific at Alpine will be shipped from McCamey over the Kansas City, Mexico & Orient railroad, which almost exclusively serves the developed area of the Permian age salt basin in which the Big Lake, Hurdle district and other west Texas fields are located.

Field Movements of Crude

TOTAL movements of crude from field sources in the west Texas territory in November, as shown in data now available, were as follows:

Counties	Number Wells	Total Runs (November)
Crane-Upton	173	550,013
Crockett	28	27,842
Howard	16	30,001
Loving	1	150
Mitchell	101	111,959
Reagan	149	788,817
Scurry	4	960
Winkler	1	3,540
Runs by Companies		
Colorado-Texas		111,959
Humble		185,847
Marland		330,664
Magnolia		454
Reagan Purchasing (Marland)		788,819
Roxana		20,490
Southern Pipeline		15,295
Storage		5,190
Texas		42,472

Steel storage capacity, stocks and room in the general area west of San Angelo are given in the following report as of December 1, last.

West Texas Steel Storage Stocks and Room

Company	Farm	Tankage	Total Capacity	Stocks (Bbls.)	Room (Bbls.)
Crane—Upton Counties					
Gulf	McElroy	2–80,000	160,000	77,425	82,575
Humble	Burleson	2–55,000			
	University	1–55,000	165,000	76,199	88,801
Marland	Burleson	4–55,000	220,000	198,327	21,673
Texas	Burleson	1–10,000			
	Union Land	1–37,500	47,500	39,490	8,010
Crocket County					
Humble		1–55,000	55,000	17,557	37,443
Marland		2– 5,000	10,000	5,000	5,000
Reagan County					
Big Lake	University	12–55,000			
		2–10,000			
		12– 1,000	692,000	495,840	196,160
Humble	Kemper	5–64,000	320,000	287,991	35,419
Purch. Co	Kemper	16–80,000	1,280,000	278,817	1,001,183
Texon Ints	University	9–55,000	495,000	123,331	371,669
Mitchell County					
Magnolia	Westbrook District	1–55,000	55,000	26,211	28,789
Colo-Tex Rfg. Co		1–55,000	55,000	47,775	7,225

Imposing Program Being Arranged For Milwaukee Convention

MILWAUKEE, Dec. 18.

THE program which Secretary Ray Overholster has arranged for the annual meeting of the Wisconsin Independent Oil Jobbers Association in the Pfister Hotel, Milwaukee, on Jan. 10, 11 and 12, is as imposing as that of the average national convention of oil men. Both Mr. Overholser and H. A. Rohde of the West Allis Oil Co., the promoter of the equipment exhibit, declare that Milwaukee again proposes to break all records for state conventions.

Mr. Rohde announces that the Pfister Hotel has remodeled its 7th floor to take care of the meeting.

Among the speakers on Mr. Overholser's program are F. W. Lovejoy, Vacuum Oil Co., and T. A. Boyd of General Motors Research Corp. Mr. Lovejoy's address at the recent convention of the American Oil Men's Association, Chicago, has since been pointed out by many as the high light of the meeting. Mr. Boyd is the author of "Gasoline." His subject indicates that the address will be like his book, simplifying technical matters in an interesting way. It is "Some Common Misconceptions About Gasoline." Mr. Lovejoy will talk on merchandising.

Among other headliners on the program are L. V. Nicholas, president of National Petroleum Marketers' Association, who will discuss "Advertising"; Judge J. C. Frost of Chicago who will talk on "Marketing Backgrounds"; Harry S. Wollheim, attorney, whose subject is "Arbitration in Industry"; C. W. Hunt of the Federal Trade Commission, Washington, D. C. who will tell of the activities of that body with regard to the oil business, and E. F. Dahm of La Salle Extension University who will tell of "An Outsider's View of the Oil Industry."

A number of topics for general discussion have been suggested by Secretary Overholser and they will be taken up where convenient in the course of the program. They are:

(1) The benefit of two years' of price posting. (2) Has the three years of collective poster advertising been worth while? (3) What is a fair margin for Wisconsin jobbers? (4) What is the future of the Independent jobber? (5) Is the Independent's service equal to that of the big competitor? (6) Is the Independent industry in danger of over-expansion? (7) Shall we ask for a law to maintain at least a 3-cent margin in localities where price cuts are in effect. (8) Is the "Spread Red Eagle" a price safe-guard?

Colored Gasoline Sold In Nebraska Now

LINCOLN, Neb., Dec. 18.—Secretary Charles M. Sutherland of the Nebraska Independent Oil Men's Association made a full explanation in a late association bulletin of the recent legal turn in this state which permits the sale of colored gasoline. Colored motor fuel is legal in Nebraska since Dec. 10.

For many years Nebraska law upheld certain standards of purity in gasoline through its inspection department. Among other things the law required that motor fuel be water white, but there was a provision in the law which made allowance for a development which had happened. The elastic provision follows:

"* * * these standards shall apply unless standards for motor gasoline differing from these standards shall be promulgated and published by the Committee of Standardization of Petroleum Specifications appointed by order of the President of the United States, July 31, 1918, whereupon said standards so promulgated and published may be adopted by the department of agriculture (Nebraska) and shall then apply and become standard for motor gasoline in this state."

Last March the standardization committee of the U. S. Bureau of Mines struck out the color specification for U. S. Motor gasoline. Local authorities have been until now recognizing the correctness of that action and have since held out for water white gasoline in Nebraska. Early in December the change came. Upon recommendation from the office of the state's attorney, the department of agriculture ruled that the federal government's decision with reference to motor fuel might take effect in Nebraska.

This permits the sale of Ethyl gasoline in Nebraska. By arrangement with the Standard Oil Co. of Indiana the Standard Oil Co. of Nebraska has exclusive sales rights on Ethyl in this state until 1929. However, other tinted motor fuels and anti-knock gasolines that are not water white are momentarily expected to appear on the local market.

Exhibits Planned For Ohio Jobbers Meet

COLUMBUS, O., Dec. 20.—Two minutes at the first day's luncheon at the annual convention of the Ohio Petroleum Marketers Association will be allotted to each exhibitor to introduce himself and call attention to his exhibit. The meeting will be held at the Neil House Feb. 17 and 18, according to advance notices being mailed out by W. A. Milne, executive secretary of the association.

About 350 Ohio jobbers are expected at the meeting, and jobbers are urged to save their orders to place at the convention. A floor plan, description and cost of booths is now being mailed out to members. Exclusive use of the hotel lounge on the mezzanine floor has been secured for exhibits, and the entire main ball room adjoining for sessions, lunches and banquet.

An educational program is being planned with well-known oil men as speakers. Open discussions will be a part of the program. Recent sectional meetings held by the association, according to "Gas Nox", the Ohio association's official bulletin, include those at Gallipolis, Dec. 1; Cadiz, Dec. 7; Akron, Dec. 9 and 14; Youngstown, Dec. 13; and Marietta, Dec. 16. Another meeting is scheduled for Cadiz on Jan. 18.

A. R. Chappell Now With Schaeffer Bros.

A. R. CHAPPEL

ST. LOUIS, Dec. 18—A. R. Chappell, formerly manager of the R. J. Brown Petroleum Co., is now connected with the Schaeffer Bros. & Powell Manufacturing Co. of St. Louis, in charge of the lubricating oil jobbing department. The lubricating oil department, which is now capable of blending oils in tank car lots, according to Ben Nichols, manager, is being enlarged to be in position to make any grade or variety of oil that the jobber may desire.

Mr. Chappell was president of the St. Louis Petroleum Club during 1924 and was active in entertaining the National Petroleum Marketers Association which met in St. Louis in that year.

FOND DU LAC, WISC.—O'Connor Oil Corp. recently entertained about 100 of its friends and customers at a banquet at Hotel Retlaw here. Addresses on lubrication problems were delivered.

Phillips Contracts Crude To Humble Company

HOUSTON, Dec. 20.—Officials of the Humble Oil & Refining Co. confirm reports from Fort Worth of the closing of a contract for purchase of Panhandle crude from the Phillips Petroleum Co., of Bartlesville, at the rate of 10,000 barrels daily. The quantity of oil purchased depends upon the amount of production of the selling company and specified obligations already existing. The price paid is to be the average of the postings made by a number of principal purchasers of Panhandle crude.

The Phillips contract will provide the Humble with about one-third the daily capacity of its 10-inch carrier system, which will be completed about June 1, next. The Humble is also constructing a 12,000 barrel topping and cracking plant in the Panhandle area were previously announced in this periodical.

Details of the Humble-Phillips contract were worked out by Harry C. Wiess and James Anderson, vice presidents, on behalf of the Humble, and Frank Phillips, president, John H. Kane, chief counsel, Paul McIntyre, land department head, and Stewart Dewar, general production superintendent, for the Phillips interests.

A. N. G. M. Will Give 3 Days To Meeting

TULSA, Dec. 20.—The Association of Natural Gasoline Manufacturers will extend its convention in 1927 to three days according to an announcement by Secretary A. B. Bourque. In the past the association has found it difficult to complete its technical programs and business in two days.

The convention will be held at Tulsa with headquarters at the Mayo hotel. Tentative dates for the meeting are April 19, 20 and 21.

Dr. G. G. Brown of the University of Michigan, in charge of the research program of the association, will fill an important part of the program with a report of his findings. The gas testing committee and committee on gas contracts are both expected to present completed reports.

Bulletin on Dehydration

WASHINGTON, Dec. 18.—One fifth of the crude produced in the Mid-Continent and Gulf Coast oil fields the last two years was successfully treated to remove water before it could be marketed. In California ten per cent of the crude produced is treated by electrical dehydration alone, states a recently issued Bureau of Mines report on the occurrence and treatment of oil field emulsions. D. B. Dow, bureau engineer, is the author. Various dehydrating methods are discussed. The Bulletin, No. 250, may be obtained from the Superintendent of Documents, Washington.

Active Wildcatting Planned in Montana; New Oil Fields Are Needed

By J. C. Chatfield
N. P. N. Staff Writer

GREAT FALLS, MONT., Dec. 18. PRODUCTION of the Kevin-Sunburst field, the first large field to be discovered in Montana, has been cut in half the past four and a half months. Since the peak of production, reached in July, the field has declined an average of 3000 barrels per day each month.

With a growing refining industry and an enlarging demand for refined products, the price of Kevin-Sunburst crude has advanced 25 cents per barrel, premiums are being paid for oil and it is expected that the Montana crude market will be advanced to an even higher level within the next few months. Competition is keen for oil now. Storage reserves are being depleted at the rate of more than 5000 barrels per day.

It is inevitable that the present situation will stimulate an active drilling campaign in Montana. Next summer is expected to find more wildcat operations in the state than at any previous time. This in spite of the fact that, out of over 170 wildcat wells drilled in Montana in the past, only five fields have been developed.

Although winter weather ordinarily shuts down most of the field activities in Montana some operators are even now beginning wildcat tests. Taking advantage of mild periods of "Chinook," when breezes from the warm Japan current raise the temperature well above the freezing point, operators are already making new locations, building rigs and starting new holes.

Five Important Tests

MONTANA operators are showing much interest in five large structures in the state which have been mapped out by Ralph Arnold, geologist, and his associates. Mr. Arnold holds leases on all these structures and has arranged for wells on four of them to test their possibilities. The last week of November the Big 11 Drilling Co. began a test on Conrad Butte, 22 miles northeast of Conrad. This well is in C SW SE of Sec. 1-29-1W. At the end of a week of drilling the well was down 700 feet.

The Julian Petroleum Corp., a large California company which bought into the Montana fields last summer, is drilling tests on two more of the Arnold structures. In the SE SE of Sec. 17-27-4W, 12 miles southwest of Conrad, Julian has a test now drilling at 300 feet on a structure named Pondera. The other Julian test is on Goosebill structure, in the NW NW of Sec. 1-27-6E, which was spudded in on Nov. 30.

Craig, McCutcheon and Spear have agreed to drill the Bannatyne structure southeast of Brady, but the well has not been started thus far. The Midway structure is the last of the five which Mr. Arnold hopes to have tested soon. Thus far no arrangement has been made for a well on this structure.

Rapid Drilling

DRILLING progresses so rapidly to the Sunburst and Ellis sands in Montana that some of the wells mentioned above may be in by the close of the month. Wells often are spudded, drilled and put on the pump in the Kevin-Sunburst fields in two weeks. W. S. Hawley, president of the Big West Oil Co., has set up a record of completing a well to the Ellis sand at something over 1300 feet and having it on the pump in nine days. A remarkable feature of this rapid drilling is that cable tools are used.

In the Kevin-Sunburst field there were 654 producing oil wells on Dec. 1, and 61 gas wells. Within the structural limits of the field 315 wells have been abandoned as dry. Off the structure 46 wells have been abandoned.

Within the limits of the field itself there has been one dry hole drilled to every two oil wells. It is common to have a dry hole between two producers, due to the spotted character of the producing formations. Metal or hard rock miners with years of experience in Montana have entered the oil business in large numbers during the past few years. Some of these miners, with their experience with explosives, refuse to consider a well dry until they have worked with it for some time.

So He Shot Again

THE story is told of one metal miner-oil operator who was in Spokane when his field foreman called up to say a certain well was dry. The miner replied that the well couldn't possibly be dry and directed that a 10-quart shot be given the hole. A little later the foreman called back and reported all he got as a result of the shot was a puff of gas.

This time a shot of 40 quarts was ordered and a few hours later it was reported that 100 feet of oil was standing in the hole. This time the miner directed a shot of 150 quarts and his next report from the foreman was that the well was flowing at the rate of 2000 barrels per day. The well had entered the sand in a hard spot and the continued shots broke away the rock making channels to a more porus section of sand.

On Dec. 1 there were 38 rigs up in the Kevin-Sunburst field, 30 drilling wells and 23 validation holes, drilled for the purpose of holding leases. The last week in November there were four completions in the field, three of which were producers, with a combined initial production of 525 barrels.

The peak production of the field was reached in July, when an average of 25,780 barrels per day was maintained. In August this dropped to an average of 22,161 barrels per day and in September another drop brought it to 18,250 barrels per day. October production averaged 15,150 barrels and November a little over 12,000 barrels per day. There are 93 operators in the field and 130 producing properties.

Intrusion of water into the gusher area in the east part of the field has been responsible for most of the rapid decline in production. Oil production on these properties has fallen and a great deal of water must be pumped with the oil.

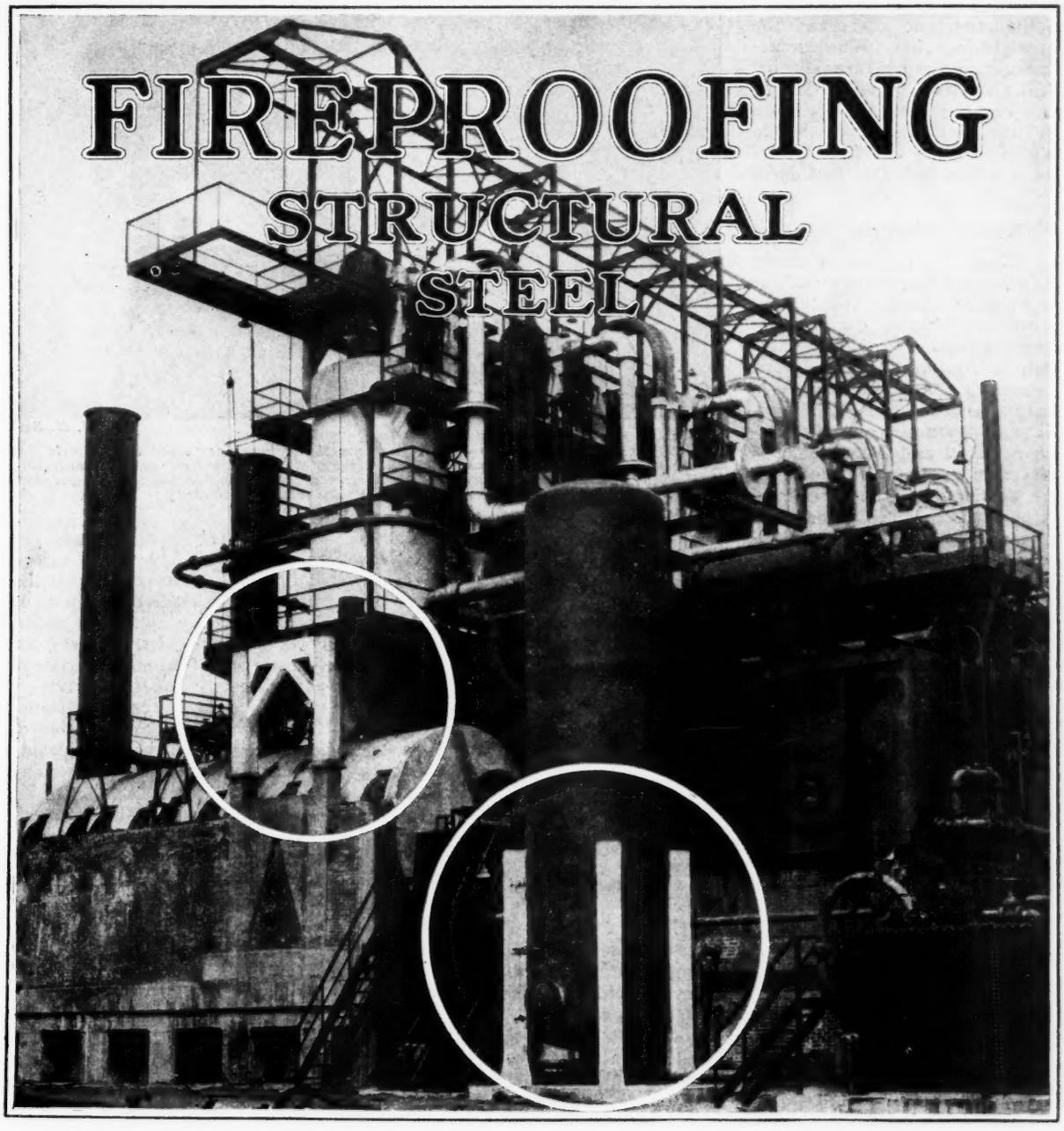
Air Lift Tried Out

TO INCREASE production the Fertig Oil Co. has been trying out the first air lift in the field on two of its wells in the east extension. The oil production of these two wells had dropped to 40 barrels per day before application of air. With two Chicago Pneumatic compressors building up an operating pressure of 180 to 220 pounds the Fertig company has been able to increase its production of fluid from the two wells to 3000 barrels of which 100 barrels is pipe line oil.

Most operators who have been confronted with the problem of lifting large quantities of water with the oil have been trying out various types of long stroke pumps. With these they are able to lift enough fluid to get a fair quantity of oil each day. The experience of the Fertig company with compressed air to increase production is being watched with interest by other operators.

As in most of the Rocky Mountain territory, there is not much market for gas produced in the Kevin-Sunburst field. There is some talk of laying a line to Great Falls for domestic and industrial consumption at that point, but capital has not been attracted to the project thus far. At present it is estimated that the field would produce around 85,000,000 cubic feet of gas per day if shut-in gas wells were opened. No information is available as to how long the supply would hold up.

There are ample pipe line facilities to handle oil from the field to adjacent



Johns-Manville Fireproofing. Note supporting legs of tank in foreground, knee braces and girders of tower supports, and supporting members of partial condensers above towers.

JOHNS-MANVILLE Fireproofing for structural steel has proven its value under the most severe conditions. Overhead apparatus, which would surely have collapsed due to weakening of steel supports, has, by this treatment, been preserved through fires that would otherwise have meant complete destruction. Use it also to insure the continued operation of remote control valve rods which might otherwise be disabled by flame.

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Oil Industry Department

railroads and refineries. The Illinois Pipe Line Co. has a six-inch line to Shelby and two lines to its big tank farm at Sunburst, one a six and the other an eight-inch line. The Homestake Exploration Corp. (Texas Pacific Coal & Oil Co.) has a four-inch line to Sunburst. The Big West Oil Co. has a four-inch line from its properties in the east pool to Kevin and Rice & McGinley have a four-inch line to Coutts, Alberta.

Refinery Situation

BECAUSE of their great distance from other refining centers and the high freight rates into the state, Montana refiners are able to obtain fairly good prices for that part of their gasoline which is consumed in the state. Freight rates to consuming centers in other states, however, are prohibitive. Although the distance from Montana points to St. Paul and Minneapolis is about the same as from Oklahoma to the same destinations, the rate from Montana points is so much higher that refiners here are not able to do business in the twin cities.

A similar situation exits on rates to Spokane and other consuming points in eastern Washington. The rate on gasoline from Lewistown to Spokane is 83½ cents per hundred and from Shelby 74½ cents per hundred.

Refiners in Montana are coming to the conclusion that their best course will be to build small refineries in Spokane and ship tops from their Montana plants to that point for further refining. H. H. Swartz, president of the Arro Oil & Refining Co. of Lewistown, and his associates are now constructing a 2,000-barrel plant at Spokane to process tops from their Montana plants. The rate on tops to Spokane is only 43 cents per hundred, a little more than half the rate on finished gasoline. The Big West Oil Co. has acquired a 40-acre site at Spokane on which it plans to build a plant next year. There has been some talk of a refinery at Minneapolis to handle Montana tops but this has not materialized as yet.

Fuel Oil Market Good

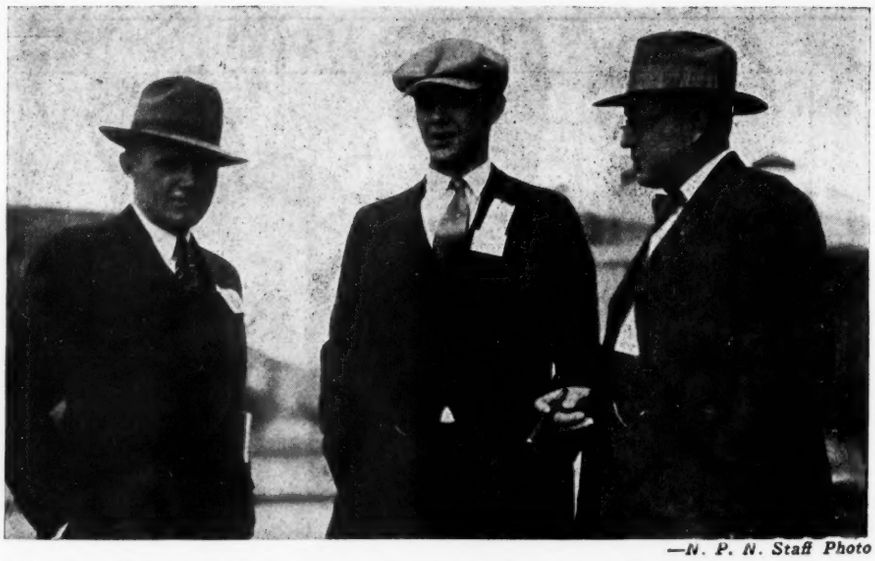
REFINERS are not disturbed about their market for fuel oil. The Great Northern Railroad has a contract with the California Petroleum Corp. for oil to operate its trains through the mountain ranges. The railroad is assured a supply over the life of the contract since the California company can deliver California fuel by tanker to the railroad in case the Montana supply should prove to be too small.

In addition to the local demand for fuel oil, refiners are able to compete with Oklahoma fuel oil in the twin cities on present freight rates. The recent reduction on fuel rates was brought about by action of the Canadian Pacific which later was met by the American roads in order to get tonnage.

Fairly large quantities of crude are being taken from the Kevin-Sunburst field for refining at plants of the Imperial Oil Ltd. at Regina and Calgary. The company was taking upwards of 6,000 barrels per day at one time. Now that production has been declining, it is reported that the Imperial will buy more Wyoming crude, possibly running no Montana oil at Calgary.

Gasoline manufactured in Montana and shipped into Canada must stand an import duty at the line. To avoid this on its Canadian business the Arro Oil & Refining Co. has a 4,500-barrel plant at Coutts, Alberta, just across the line in Canada. The company has one tank car loading rack in the United States and one in Canada, so that its shipments can be made to originate in either country as may appear to be desirable.

On December 1, producers' and pipe line stocks of Montana crude totalled approximately 1,200,000 barrels, most of which is held in the tank farm of the Illinois Pipe Co. As mentioned above stocks were then being depleted at the rate of about 5,000 barrels per day.



—N. P. N. Staff Photo

"The Three Muketeers" whose duty it is to see that oil and gas wells are properly handled in the Rocky Mountains. Left to right, C. R. Mazey, Montana state oil and gas inspector; Ernest A. Hanson, U. S. Geological Survey, representative at Shelby, and Jack Steele, Casper, U. S. G. S. supervisor for the Rocky Mountain territory

Cold Snap Fails to Halt Panhandle Outfit

TULSA, Dec. 18.—Production in the Texas Panhandle fields was little changed during the past week, although a severe cold snap, lasting three days, visited the territory. That production continues to exceed shipments is indicated in the figures for the week ended Dec. 14, these being on a different basis than the A. P. I. figures published elsewhere in this issue.

During that week, daily average receipts from producers by pipe lines were estimated at 161,000 barrels and deliveries at 101,000 barrels, with 60,000 barrels going into storage. Peak production in the Panhandle was 166,500 barrels, during the week ended Nov. 18.

Some increase in difficulty of handling oil through pipe lines is reported. On one line, which, however, is exposed at a number of places, it is said that a pressure of 300 pounds moves about one-third the oil that was moved at 250 pounds during the summer and that, after a shut-down of as long as two hours, more than 500 pounds pressure is required to start the oil again. Pipe line companies in general are requiring producers to heat their oil to temperatures of 85 to 105 degrees F. before it is run. This has helped greatly, although some trouble is experienced before the oil reaches the trunk lines.

Companies which have steam lines into all run and stock tanks report little difficulty in moving the oil, although high pressures are required. More pumping stations probably will be installed by the companies that now maintain considerable intervals between stations.

The Magnolia Petroleum Co., for example, is now putting in a booster station half way between the main tank farm and the Dixon Creek station. This new station will be about 10 miles from each of the two present stations. Oil which is moved from the Dixon Creek station leaves there at about 120 degrees F., but by the time it reaches the tank farm it has cooled to around 65 degrees.

Survey to Open Office in Sapulpa

TULSA—The U. S. Geological Survey will open a sub-office of its conservation division in Sapulpa about Jan. 3. Richard T. Bright, associate petroleum engineer, formerly valuation man for the Sinclair Oil & Gas Co. will have charge of the office, which will function under the division office at Muskogee in supervising operation on leased Indian lands. An office probably will be opened in February at Holdenville. Other sub-offices are now maintained at Okmulgee, Cushing and Ardmore.

Seminole at New Production Peak Passes Burbank, Tonkawa

By A. F. Hinton
N. P. N. Staff Writer

TULSA, Dec. 18

SEMINOLE again reached a new peak during the past week—exceeding its former record—by averaging better than 133,000 barrels daily, a gain of 3,000 barrels over the preceding week. This gain, however, was not sufficient to offset losses in other fields, notably North Braman. Oklahoma as a whole recorded a decrease of 3,585 barrels in output.

Daily average production for the state was 561,040 barrels, according to National Petroleum News estimate. The first real winter weather of the current season came in Oklahoma and Kansas during the week, temperatures in the oil country going as low as seven degrees above zero, and this was reflected immediately by reduced production in settled fields.

Seminole has now passed both Burbank and Tonkawa in size of output, and these are the only three Oklahoma fields that have made more than 100,000 barrels a day since the days of Cushing. Burbank got as high as 121,760 barrels daily in July, 1923, and came back to 111,800 barrels in April of the succeeding year. Tonkawa's peak was 114,700 barrels, reached in May, 1923, and the field was not able to exceed this mark even after the discovery of the Wilcox sand, although it did get up to 111,950 barrels in September, 1924, as a result of the deep-sand development. Seminole now has been over the 100-000-barrel figure for seven consecutive weeks and has just completed its second week above 130,000 barrels daily.

Developments of the past week included the completion of the proverbial "flock" of new wells at Seminole, some of which had initial production comparable with those of the earlier days in the field's history. The productive territory also was extended by two wells, one of which is a real gusher and the other showing for a well on top of the sand. Most of the completions were in section 23-9-6, where the Amerada Petroleum Corp. drilled in its No. 1 Killingsworth Sept. 13 for a one-mile extension of the Wilcox sand area. Until the last two weeks, when many wells have been drilled in, the Amerada's pioneer was the only producer in this section.

Production Nearing the Town

ONE of the extension wells referred to was the Carter Oil Co. No. 1 Lukes, in the NEc of 27-9-6. This is the second well to be completed in this section, and is the nearest production to the town of Seminole, the outskirts of which may soon be engulfed in a torrent of derricks. The first well in section 27 was the Prairie Oil & Gas Co. No. 1 Strothers, which came in at about 9000 barrels and is still making better than 5,500 barrels daily. This well is in the southeast corner of the section, a mile due south of the new Carter well. The Carter well topped the Wilcox sand at 4102 feet and when drilled to 4113 feet, flowed 3,310 barrels in the ensuing 12 hours. At this rate, it is good for better than 6,500 barrels a day.

Another interesting extension well is also one of the Carter Oil Co.'s tests. This is its No. 1 Cudjo, in the NEc SE of 34-9-6, a half-mile south and a location west of Sinclair Oil & Gas Co. No. 1-B Cudjo, which is still making 3,580 barrels at 45 days old. The new Carter well, which has had all formations about on a level with the Sinclair, which is the highest in the field on top of the Wilcox, had the Hunton lime from 3894 to 3915 feet and topped the Viola lime at 3987 feet. At last reports it had 3,000 feet of oil in the hole from 4070 to 4075 feet, which was total depth at that time. A big well at this point would be a very important extension to the field's area.

Barnsdall May Have New Pay

BARNSDALL OIL CO. may have found a new pay, or it may have found the real Wilcox sand, in its No. 5 Carter, located in the SEc SW NW of 24-9-6, three locations west of the original I. T. I. O. Co. discovery well. The Barnsdall well drilled through the Wilcox sand from 4103 to 4165 feet, after which it went through a 14-foot break of green shale. At 4179 feet it found another sand and has been drilled two feet into it. As far as is known, this is the first well in the field to drill through the Wilcox into the underlying shale without getting any water and is probably the first well to get this lower pay.

The well had only 2,000 feet of oil in the hole before being drilled into the lower sand, and looked like a dry hole. After reaching its present total depth, it was swabbed and flowed about 1,500 barrels, after which it was given a shot of 35 quarts in the upper sand and made 2,145 barrels the ensuing 12 hours. The company has not been able to determine whether any of the oil is coming from the lower sand, so the importance of this find is yet to be proven.

Carter Oil Co. has a well flowing 180 barrels an hour in its No. 3 F. Carter, in the SEc NE SE of 23-9-6. This well had the Wilcox sand from 4085 to 4093 feet and was later drilled to 4102 feet, its present total depth, without increasing its production. The same company's No. 2 on this farm, has 2,000 feet of oil in the hole from the Hunton lime topped at 3870 feet and drilled to 3896 feet, and its No. 4 is making 250 barrels in the Hunton from 3918 to 3950 feet. Both wells are drilling ahead for the Wilcox.

Oklahoma City Test Disappoints

ONE interesting feature of the week's developments was the failure of the Oklahoma City wildcat to find oil in paying quantities after having been drilled deeper into the sand. This well, the Cromwell Oil & Gas Co. No. 1 Edwards, located in the SWc NE SE of 10-12-3W, Oklahoma county, had an oil showing at 4383 feet, as told in these columns last week. During the past week, it was drilled to total depth of 4387½ feet, where it got a hole full of water, and now looks like a failure.

Marland Oil Co. No. 1 Looman, in the NEc SE of 9-20-4W, Garfield county,

Drilling Operations in Okla., Kan., N. Texas and N. Mexico

	Dec. 18 — Week Ending —					Dec. 11				
OKLAHOMA	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
Burbank	3	9	41	1	54	3	13	39	1	56
Other Osage	7	9	47	7	70	9	10	55	8	82
Bristow-Cushing	12	14	115	13	154	13	18	121	12	164
North Oklahoma	10	17	115	42	184	8	23	106	44	181
South Oklahoma	27	35	159	50	271	28	29	163	45	265
Muskogee	...	19	36	18	73	...	13	42	12	67
Okmulgee-Bristow	3	52	122	27	204	1	46	139	27	213
Tonkawa	1	...	10	2	13	1	...	10	2	13
Seminole Dist	23	53	383	21	480	29	56	348	32	465
Total Oklahoma	86	208	1028	181	1503	92	208	1023	183	1506
KANSAS	57	72	240	95	464	64	77	224	108	474
TEXAS										
Central Texas	...	138	219	138	495	...	108	198	145	451
East Texas	...	2	20	11	33	...	2	19	14	35
Panhandle	...	145	297	78	520	...	135	320	88	543
N. Cent. Texas	...	72	142	43	257	...	73	132	42	247
W. Texas	...	96	190	67	353	...	112	156	65	333
Total Texas	...	453	868	337	1658	...	430	825	354	1609
GRAND TOTAL	143	733	2136	613	3625	156	715	2072	646	3589

Completions in N. C. & E. Texas & Panhandle, Week Ending Dec. 18

Archer County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Kruger et al	7-Turberville	Carson	1496–1520	200
Kruger et al	10-Turberville	Carson	1496–1514	25
Marland	13-Turb.	Carson	1494–1515	180
Simms-Burns	4-Turb.	Carson	1492–1505	400
Texas	12-Turb.	Carson	1498–1525	643
Texas	13-Turb.	Carson	1498–1525	643
Nicholson et al	2-Prideaux	Dorsey	691– 697	9
Brown et al	1-Huthes	Denton	T.D.1814	Dry
Kruger et al	1-Turberville	Carson	T.D.1519	Dry
Marland	11-Turb.	Carson	T.D.2001	Dry

Brown County

Ray	5-Stout	Smith	T.D.1404	Dry
Root et al	13-Suttles	Mitchell	T.D.1135	Dry
Prince et al	1-Turner	Graham	T.D.1660	Dry
Mear et al	2-Turner	Culberson	T.D.1650	Dry
Dozier	1-Carson	Wilson	T.D.1680	Dry
Humble	7-Foster	Benson	1169–1195	172
Tidal	2-Hodnott	Harris	1206–1211	172
Danciger et al	2-Haynes	Delgado	1160–1179	150
Texas	2-Johnson	Johnson	1282–1289	5
Louisiana	7-Henslee	Curlong	1283–1292	5
Louisiana	8-Henslee	Curlong	1554–1584	17
Bradstreet	5-Stout	Smith	1162–1191	240
Bradstreet	6-Stout	Smith	1155–1195	340
Texas	1-Williams	Rock	T.D.1318	2½M
H. W. Drlg	1-Prater	Travis	T.D.1341	10
Gillespie	13-Newton	Swain	1288–1293	10
McLester	11-Wooldridge	Gaines	1225–1247	98
Curry-Moore	8-Wooldridge	ET	1220–1255	50
Texas	3-Pugh	Pugh	1325–1335	40

Carson County

Texas	9-Burnett	I&GN	3137–3154	40

Callahan County

Amerada	6-Long	Anderson	1394–1409	10
Cranfill et al	4-Bond	Comal	T.D.1540	Dry
Cranfill et al	5-Bond	Comal	T.D.1742	Dry

Cooke County

American	8-Dennis	Moss	1228–1276	40
Hoosier	11-Dennis	Moss	1250–1276	35
Sun	8-Hyman	Moss	1191–1262	105

Crane County

Texas	12-Gowden	GCSD	2410–2430	74

Eastland County

Moore et al	1-Pritchard	H&TC	1160–1185	2½M
Golding et al	1-Case	Roberts	T.D.1433	Dry

Ector County

Exploration	1-Slater	TP	T.D.4325	Dry

Foard County

Gulf	1-Miller	H&TC	T.D.3060	Dry

Gaines County

Hucany	1-Lindsey	Public	T.D.3255	Dry

Gray County

Humble	3-Merton	I&GN	3110–3176	10
Magnolia	9-Merton	I&GN	2982–2997	33
Shamrock	3-Reynolds	I&GN	3115–3118	400
Humble	2-Reynolds	I&GN	2965–3070	25
Prairie et al	6-Reynolds	I&GN	3006–3050	567

Hardeman County

Pigg et al	1-Easley	H&TC	T.D.3009	Dry

Hutchinson County

Marland	3-Christian	Anglin	2900–2931	800
Gulf-Panhandle	3-Cline	Hedgecoke	2860–2900	75
Gulf-Panhandle	32-Dial	H&GN	T.D.2903	90
Marland	1-Tex.	River Bed	2740–3275	20M
Gulf	5-Whittenburg	Whitley	2868–2910	165
Kistler	2-Johnson	A & B	2895–2941	1490
Derby	3-Johnson	M&C	2911–2956	85
Lenix-Kistler	2-Whittenburg	M&C	2958–3040	960
Phillips	10-Johnson	Whitley	2048–2878	300
Devonian	6-Johnson	Whitley	2840–2958	350
Wetzel et al	1-Johnson	Whitley	2950–2982	200
Currie-Phillips	2-Smith	M&C	2875–2990	600
Lucky Tex	2-Smith	M&C	2708–2798	75
Lucky Tex	4-Smith	M&C	2730–2810	125
Swindler	1-Cockrell	D&SE	2982–3002	25

Jack County

Buttram	5-Preston	Chairs	2051–2057	100

Limestone County

Company	Well Farm	Location Survey	Depth	Initial Prod.
Transcontinental	9-Cogdell	Varella	2485–2575	410
Transcont	5-Atkins	Varella	2816–2819	160
Transcont	7-Midlock	Varella	T.D.2833	Dry

Montague County

Continental	10-Bouldin	Chambliss	1101–1115	89
Continental	4-Rowland	Votan	1068–1073	67
Texas	4-Maddox	Thompson	882– 895	75
Texas	5-Maddox	Chambliss	885– 889	25
Texas	26-Rowland	Chambliss	1065–1071	6
Continental et al	4-Maddox	Thompson	851– 869	14
Continental	13-Howard	Chambliss	1356–1370	25
Continental	7-Maddox	Thompson	875– 896	35
Continental	2-Maddox	Thompson	T.D. 880	50
Continental	3-Maddox	Thompson	T.D. 868	30
Continental	12-Howard	Chambliss	1362–1375	20
Continental	6-Salmon	Zuber	876– 892	24
Texas	1-Brown	Creves	T.D.1999	Dry
Texas	1-Salmon	Zuber	T.D.2193	Dry
Fleming et al	7-Hynds	Wall	T.D. 900	Dry

Reagan County

Big Lake	101-Univ.	Univ.	2953–2964	837
Big Lake	99-Univ.	Univ.	T.D.2885	10M
Big Lake	58-Univ.	Univ.		60
Big Lake	73-Univ.	Univ.	T.D.2510	Dry

Shackelford County

Carter	3-Proctor	A B & M	T.D.2227	Dry
Manhattan	1-Moberly	ET	T.D.1308	Dry
Rosier-Pendleton	16-Cook	ET	1302–1310	100
Rosier-Pend	18-Cook	ET	1311–1324	100
Rosier-Pend	5-Cook	ET	1317–1339	50
Rosier-Pend	4-Cook	ET	1112–1130	7M
Rosier-Pend	37-Cook	ET	1330–1340	15
Rosier-Pend	38-Cook	ET	1338–1350	15
White Eagle	1-Moberly	ET	910– 919	25

Stephens County

Chestnut-Smith	2-Hodges	TP	3396–3410	3M
Tex-Fidelity	3-Pratt	TP	T.D.2035	90
Texas-Fidelity	4-Pratt	TP	1941–2032	173
Gulf	2-Spicer	TP	T.D.3858	Dry

Sutton County

Chesapeake	1-Ellison	Georgetown	T.D.3520	Dry

Throckmorton County

Reiter-Foster	2-Elliott	TEL	T.D.4150	Dry
Reiter-Foster	2-Parrott	TEL	T.D.4002	Dry

Upton County

Marland-Texon	1-Half	GCSD	T.D.4073	Dry
Marland	8-Estep	MK&T	T.D.2346	Dry
Marland	1-Shirley	GCSD	2090–2097	1800
Indep	7-Wooley	GCSF	2120–2124	500
Marland	1-Powell	King	2470–2472	360
Marland	16-Sanger	King	2335-T.D.	75
Marland	17-Sanger	King	2285–2353	140
Republic	5-Baker	Grooms	2240–2304	67
Gulf	1-Sherk	MK&T	2280–2331	85

Wheeler County—Panhandle

Texas	1-Smith	H&GN	2280–2332	75

Wichita County

Hawkins et al	1-Marshall	West	T.D.1830	Dry
Lissums et al	1-Barwiss	Cole	T.D.2004	Dry
Magnolia et al	2-Sench	TC	T.D.3040	Dry

Wilbarger County

Phillips	2-Waggoner	H&TC	1892–1914	405
Humble	10-Waggoner	H&TC	2211–2217	90
Humble	16-Waggoner	H&TC	2396–2410	95
Phillips	13-Waggoner	H&TC	1856–1858	17
Phillips	14-Waggoner	H&TC	1856–1891	46
Phillips	16-Waggoner	H&TC	1894–1913	46
Phillips	3-Waggoner	H&TC	2426–2429	80
Phillips	1-Waggoner	H&TC	2296–2304	30
Phillips	4-Waggoner	H&TC	2580–2582	48
Milham	19-Waggoner	H&TC	2277–2287	92
Phillips	1-Waggoner	H&TC	2539–2540	25
Phillips	8-Waggoner	H&TC	2311–2337	40

Young County

Panhandle	1-Farmer	BBB&C	789– 806	37
Goldsmith et al	1-Wilson	TEL	997– 990	75
Bridwell et al	10-Street	TEL	1295–1316	Dry
Madden-Hunt	1-Stowe	Poitevant	T.D.1107	Dry
Landreth et al	1-Hamilton	TEL	T.D.1253	Dry
Roxana et al	1-Allison	TEL	T.D.1002	Dry
Goldsmith et al	1-Simms	TEL	T.D. 790	Dry
Jeffers et al	1-Weems	TEL	T.D.1008	Dry

reported last week as having drilled into water after having an oil showing in the Layton sand, is now preparing to drill on down in search of the Wilcox sand. This well topped the Layton at 4597 feet, and went into water at 4626 feet. It made 410 barrels in four days before being deepened, having first oil showing at 4617 feet.

Roxana Petroleum Corp. No. 1 Brunken, reported last week as the deepest hole in Oklahoma, is still deeper now, having reached a depth of 5873 feet, and still in the Mississippi lime. It progressed 68 feet during the week. This well is located in the SWc NE of 29-23-4W, Garfield county, northwest of the Garber field.

ELYRIA, O.—The Peerless Oil Co., with headquarters here, has just completed two service stations of its standard type, one in Amherst, O., and the other at Lorain, O. The Amherst station has 12 outlets for gasoline and the Lorain station, 20 outlets, according to Charles E. Tucker, secretary and treasurer. The Erie meter system is in use at all stations. Each station is equipped with drain pits.

WASHINGTON, IA.—Washington Oil Co. has added a new 20,000 gallon storage tank and has improved driveways and grounds at its two service stations here.

Completions in North Louisiana and Arkansas, Week Ending Dec. 16

LOUISIANA

Caddo Parish—Caddo District

Company	Well	Location	Depth	Yield
Gulf Refining Co.	Ferry Lake No. 258	28–20–16	2247	250
W. H. Cook, trustee	Muslow Oil Co. No. 1	32–21–15	2160	2m. ft. gas
Texas Oil Co.	J. F. Herndon No. 7	14–21–15	1700	10
Unity Pet. Co.	Crystal O. R. Co. Fee No. 7	14–21–16	2304	6m. ft. gas
Unity Pet. Co.	Crystal O. R. Co. Fee No. 9	13–21–16	1055	10
Victor Wenzel	Hunsicker No. 5	15–20–15	2223	500

Caddo Parish—Vivian

Texas Oil Co.	Lenoir No. 7	26–22–15	1025	15

Bossier Parish—Spring Hill

Oil Fields Gas Co.	Bolinger No. 2	38–23–11	2640	10m. ft. gas

Cotton Valley—Webster Parish

Magnolia Pet. Co.	Tiner No. 4	21–21–10	2566	100

Urania—LaSalle Parish

Nat. Gas & Fuel Corp.	Mo.Pacific Ry.Co.No.1	26–10–1E	1515	50

Little Creek—LaSalle and Grant Parishes

H. L. Hunt	Urania No. 3	2– 9–1E	1505	300
La. Oil Ref. Corp.	Tremont C-8	2– 9–1E	1500	250

Ouachita Parish

Jordan Drilling Co.	Halterman No. 1	23–20–5E	2280	3m. ft. gas
T. L. James	Central Emigration No. 1	31–20–5E	2177	12m. ft. gas
United Carbon Co.	Gutherie No. 2	5–20–4E	2150	40m. ft. gas
Southern Carbon Co.	Ladel No. 4	2–19–4E	2215	2m. ft. gas

EAST TEXAS

Panola County

Goldenrod Oil Co.	Johnson No. 6 B.C.Jordan HRS		1990	3m. ft. gas

ARKANSAS

LaFayette County

Ark. Fuel Oil Co.	Allen No. 5	18–19–24	2787	25

Lisbon

Lion O. & R. Co.	Werner No. 3	21–17–16	2180	20
Unity Pet. Co.	Sidnor No. 7	21–17–16	2170	15

Union County—Hillsboro

Simms Oil Co.	Simmons No. 1	9–18–13	2520	s.w.aband.

Smackover

Owenwood Oil Corp.	Snyder No. 12	34–15–15	2368	125
J. D. Reynolds	Cramer No. 3	22–15–16	2020	10
Standard Oil Co. of La.	Umstead No. 30	33–15–15	2365	250
G. J. Childs	Fee No. 5	8–16–16	2657	35
Federal Pet. Co.	Ballard No. 8	10–16–15	2590	50
C. L. Saxon	Fee No. 3	4–16–16	2395	20
Hollyfield et al.	Murphy No. 2	9–16–15	2702	25 10m. ft. gas

New Field in the Making At Seal Beach

LOS ANGELES, Dec. 18.—At the close of this week the new field at Seal Beach, about midway between Long Beach and Huntington Beach, had daily production of about 12,500 barrels, with 15 wells drilling and five more to start in a few days.

The spectacular well of the field, making 3025 barrels was completed Dec. 14 by the Associated Oil Co. on a 40-acre tract that had been held by other companies in the past and turned back as unlikely territory. The Shell Co. last held the tract, together with other acreage, drilling three dry holes on near by land and one well almost offsetting the Associated 40-acre tract. This last named well produced some oil, but not in commercial quantities.

The Associated's Bryant 1 was completed at 4366 feet for initial production of around 2000 barrels. The flow increased until it made 3025 barrels of 23.9 gravity oil Dec. 16, without an oil string. The tubing pressure was 600 pounds with casing pressure of 1000 pounds. It is flowing through 5/8-inch bean, or choke.

The new well is 2250 feet southeast of the Marland discovery well. Twenty-inch surface casing was cemented at 82 feet, with a string of 15½-inch landed at 1414 feet. The 8⅝-inch string was landed and cemented at 4337 feet, with bottom of the hole at 4366 feet, without an oil string or perforated pipe. The oil is clean.

The Huntington Beach townsite area has probably reached its peak with daily production of almost 60,000 barrels, and a steady decline is slated for the next few weeks, although it may not be felt to a great extent until around the first of the year, as some 75 wells are drilling. But the wells are drilled close together and can hardly be expected to hold up.

The Associated Oil Co. this week also completed a new well in the old Santa Fe Springs field for a flush production of 465 barrels in 18 hours. This was Deweter No. 5 in the old field, at 4600 feet, making 33.4 gravity oil, through 564 feet of perforated pipe. The well is being flowed by compression.

The Ventura Avenue field is without a new producer for past two weeks, and, without flush production to hold up its output, the field is showing a daily average decline of close to 3000 barrels per week. The actual decline for the week ending Dec. 13 was 3250 barrels, with one producer shut in to be worked on.

Early this week 38 wells were drilling in this field, of which 18 were below 5000 feet, and five of the 18 below 6000 feet. The deepest producer in the field was completed at 6600 feet.

LOS ANGELES, Dec. 18.—The Ahlburg Gasoline Co. is moving its natural gasoline plant from the northwest extension of the Long Beach field to Huntington Beach where recently completed wells are furnishing a large amount of gas.

Gasoline Consumption Curve Flattens

THE so-called "gasoline season" has been extending both ways the last few years, and certain definite conclusions can be drawn from analysis and comparison of gasoline figures, a special article by Roger B. Stafford, National Petroleum News staff writer, will show in its Dec. 29 issue.

In winter, it is pointed out, the rate of consumption follows very closely general business conditions. In general, consumption is approaching a degree of stability from such causes as extreme cold or prolonged spells of rain that speaks well for future market conditions.

I. C. C. Denies Petition Of Sinclair On Rates

By Special Correspondent

WASHINGTON, Dec. 20.—Finding no reason for changing its views, the Interstate Commerce Commission has denied the petition of the Sinclair and other losing refiners in the case decided last summer, dubbed by it as Mid-Continent Oil Rates, 1925, for modification of the decision in which the primary outcome of the fight among the different refinery groups, was an increase in the rate from group 3, Tulsa, to Chicago, from 36 to 39 cents.

Other than that, the leading feature of the decision was the reduction of rates from the Kansas City group to points up the map toward Casper, because, as it said, the spread in rates between Tulsa on the one hand and Kansas City on the other hand favored Tulsa too much.

Railroads delivering shipments from the Mid-Continent groups to points east of the Mississippi also asked to have the case opened up again because they believed, as delivering lines, they had been given the short end of the stick. The regulating body stood pat on every phase of the report. The report may be regarded, therefore, as a fixture to remain as it is until the railroads west of the Mississippi are given as is expected, a percentage increase on all rates. They are now before the commission asking for more money by way of increases in rates on which merchandise traffic is hauled. When those rates, known as class rates go up, petroleum and its products, probably will also be hoisted. Oil rates, in many parts of the country are definitely related to class rates, so when class rates are put up, they also go up. West of the Mississippi they are not as definitely related to class rates as east of that stream but they are among those which it has been suggested could stand increases, without the higher rates being of a goose killing character.

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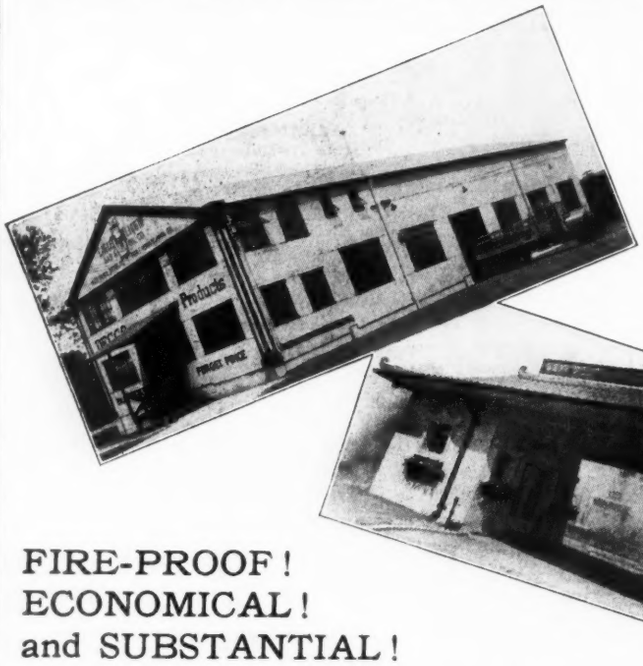

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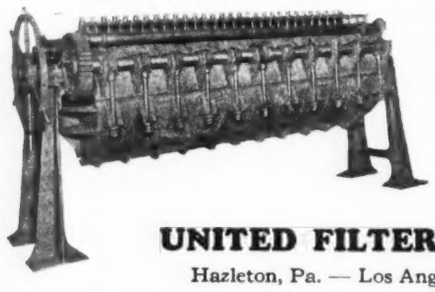

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Shaffer Selling 60-62 At Competitive Price

CHICAGO, Dec. 18.—Shaffer Oil & Refining Co., recently made the announcement that gasoline sold from its own filling stations, in competition with gasoline of U. S. Motor specification, would be of 60-62 gravity. This eliminates the 58-60 gravity material from Shaffer stations entirely. They still are marketing 64-66 as high test, however.

It is understood here that the Shaffer refineries are still cutting material of U. S. Motor specification and that it is being carried on the company's tank trucks to supply regular customers who do not care to make the change. The refinery also makes a considerable volume of 64-66 and some 68 material. The change in Shaffer's marketing policy has not been made 100 per cent effective but it is acknowledged that the firm's intention is to cease selling 58-60 entirely as soon as it is practicable.

Shaffer Oil & Refining Co. markets in about a dozen states in and around Chicago, its territory including Standard Oil Co. of Indiana territory and more. This action puts Shaffer definitely in the group of companies that sell high-test gasoline at the going price of Red Crown and other competitive grades. The Texas Co. was first to start the action early in the spring of 1926. It was followed during the 1926 season by Marland Refining Co. and White Eagle Oil & Refining Co.

Bolene Refining Co., although with a small outlet through its own stations in Wisconsin, had pursued that same policy even before The Texas Co. started it. With the Bolene and The Texas Co. stations in Wisconsin selling high test gasoline at Red Crown prices, other Independents began to do the same thing. They were almost forced to follow because Wisconsin law requires every gasoline pump to bear a placard showing the gravity of the gasoline sold and Wisconsin motorists are accustomed to consider high gravity a proof of high quality.

The situation in Wisconsin caused Standard Oil Co. of Indiana a few weeks ago to start selling a special 60-gravity Red Crown exclusively in that state. This was a concession to popular prejudice caused mainly by state law but nevertheless was forced by competition. The trade generally is wondering how many marketers in Indiana territory will be added to the present group before Standard of Indiana makes the Wisconsin policy general.

WATERLOO, IA.—The Waterloo Oil Co., with headquarters here, has taken over the entire building in which it has been located, comprising 23,400 feet of floor space. The building includes a service station, a sales room, storage space for 150 cars, washing, greasing and tire service, and it is equipped with the sprinkler system, according to J. H. Hadley, a member of the company.

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Proper Care of Cable Drilling Tools And Joints in the Field

By C. T. Mapes
Oil Well Supply Co., Pittsburgh
Presented at Tulsa Meeting A. P. I., Dec. 8

BY way of a brief review of the work of the cable drilling tool joint division committee of the American Petroleum Institute, it will perhaps be of interest to you to know that to date there have been supplied over 400 sets of A.P.I. Box and Pin Gages (or Templates) the larger percentage of this number having been purchased by manufacturers in this and foreign countries.

A quantity of this number was purchased by producing interests who maintain field shops to aid in the speedy up-keep of necessary repair work. This outstanding evidence of cooperation, looking to a greater certainty of uniformity of product, whether purchased in the north, south, east or west, is of immeasurable value to the purchaser and use of cable drilling tools. This may rightly be considered a step towards an economic condition that should prevail in the industry.

Nothing will aid so quickly in bringing these new standards into general use as a fixed practice by all purchasers of specifying A.P.I. joints on all inquiries and orders for cable drilling tools.

The practice of inspection of cable drilling joints by purchasers of tools for export shipment has never been generally followed, except by a few of the larger buyers in the domestic trade. Such practice, if followed, affords an avenue of useful information direct to the purchasing agent, regarding quality of material, workmanship, etc. The importance of intelligent inspection of new (and used) joints on drilling tools in field warehouses, will be found of great economy and it will, as well, aid in keeping up such stocks—always in condition for immediate use. By such inspection, damage to threads or the faces of joints may be found and corrected, and at the same time the stamping may be examined to assure that the tools are the product of some manufacturer having a permit to stamp tools with the A.P.I. monogram. Inspection should cover not only the fact that the joints check correctly to gage, but also that the finish of the threads and faces of the joints are what they should be.

Gaging Difficulties

A STOCK, or warehouse, keeper soon acquires a knowledge that little can be determined by trying to test out with plug or ring gages the accuracy of either the box or pin member of a taper joint that has been in service. There certainly is a time, when from long and continued use, an old box or pin is unfit to match up with either a new pin or box connection. Just how to determine such a condition is of vital importance to the user in the matter of avoiding delays in operations which may result from unscrewed or broken joints in the well, followed by long and uncertain fishing jobs.

The repeated and continued strains to which the threads on joints are subjected by the applied ratchet jack pressure causes distortions over the entire length of the threaded members. Such conditions are known and appreciated more, perhaps, by manufacturers and technical men than by purchasers and users of tools in actual field practice. Fortunately, such distortion is less evident generally in the box on a stem and the pin on a drilling bit, which is accounted for because of a harder quality of steel in the all steel bits now in use, which steel does not yield to the influence of the jack pressure.

Forcing No Remedy

BY way of illustration on this subject, a sample thread test gage, when matched with a used pin, conveys the condition which exists when attempts are made to match old and new joints together. The operator may, by forcing, make and break such a joint many times and perhaps feel that the point is made and should serve O. K., but it is far from right and may well be considered false economy, for a large percentage of pins which break off in a well are a result of such practice. There is another dangerous condition which follows the distortion of threads, and that is the fact that the excessive and continued use of the ratchet jack has strained the metal in the joint-pins beyond the elastic limit and beyond the yield point. This condition cannot be detected with the naked eye, even in the operation of returning and re-threading. Many pins in this condition are shopped for re-cutting, but the re-cutting corrects only the thread form, the grain of the steel is broken up and its original strength is gone. Failure of such a pin in service is most probable. By far the safer remedy is to send such tools to the forge shop, ring and draw out a new pin, after which, of course, it is threaded in the same manner as a new tool.

It would hardly be too much to say that the care of pins on drilling bits extends even to the care that is exercised in the dressing, that is, the form of dressing. Bits dressed with uneven corners, that is, one corner in advance of the other, cause shock to the joint that is responsible for both unscrewed joints and broken pins, and a careful check, if you care to make it, will show that more than 50 per cent of bits with broken pins that come into shops for repairs are dressed with one corner in advance of the other. Bits dressed with the center slightly in advance insure the minimum shock to joints and dispel vibration best, however, some operators do not favor such form of dressing in cutting some formations.

The practice of burning off any oil or grease that may be on a new joint before "making up" is not objectionable, provided it is heated only sufficient to accomplish that purpose. The presence of such grease serves to make the joint creep and the operator does not feel secure that the joint is tight and will hold.

Bits Should Be Cleaned

IN the moving and transporting of drilling tools, it is quite impossible to keep them clean and free from dirt and grit. No pains should be spared to remove all such grit before joints are matched up. Stoning of the faces of joints is good practice, if carefully carried out. It removes a glazed surface that forms as a result of the pressure on the joint faces, yet at the same time makes the face of the joint not less smooth. Only a fine sand-stone should be used, it should have a very flat surface and care exercised to hold the stone flat against the face of the joints, and to stone the surface all around as uniformly as possible, after which they should be washed to remove any grit which might contribute to start a rolling condition on the joint faces.

Repeated setting and breaking of joints in the "making up" operation causes the threads and faces of the joints to yield to a more perfect contact, the result of which is a joint that will "stay put" and continue to give satisfactory service.

There are many rust preventing oils on the market, and no owner of tools can afford to overlook the importance of protecting such tools as are not in use, against attack of rust, for a rust pitted joint is never as good as it once was.

Suggested Research Work

WHILE the main purpose of your Committee has been accomplished, there is yet a broad field in the direction of improvements that can result from research work, much of which might be separate and apart from the

joint subject, yet of convenience and usefulness to the industry generally.

In this connection, subjects which might well have consideration are:

Improved methods of heating for dressing cable drilling bits, especially bits of large sizes.

Mechanical method of spreading and dressing cable tool bits.

Improved slack tubs capable of containing a greater quantity of water and into which running water is constantly admitted during the operation of tempering a bit.

From the 8 inch bit which was a "Big Hole" bit of the Bradford and surrounding fields, we find today, very common in use 22 inch and 24 inch bits, weighing one and one-half to two tons.

The cross section of a bit blade of such proportions presents a problem of heating with safety because of the heavy side sections on either side of the thinner center web.

Mainly the problem is to avoid undue strains in the steel being heated and favorable results can only be attained by such slow heating as will insure to the greatest possible extent uniform expansion.

The common derrick forge generally in use is quite unsuited in every way to safely prepare large sized bits for the dressing operation. One of the greatest factors in heating bits at the well is the mixture of fuel and air. This mixture must be correct or the steel will be so decarburized on the surface during the dressing and hardening heats that the steel can not be hardened.

Too Much Air Harmful

ADMISSION into a forge or furnace of a quantity of air in excess of an amount necessary for complete or perfect combustion will burn out the Carbon in the steel, leaving a decarburized surface over which is formed a scale, and even though such scale be removed the surface of the steel has been ruined to such a depth that the steel will not harden when quenched in the water for the reason that the carbon content, which makes the hardening of the steel possible, is gone.

Most common errors in bit heating are:

Too rapid heating.

Admission of too much air during heating.

And the permitting of flame directly against the steel.

Centrally located bit dressing shops equipped with specially constructed furnaces, improved burners and heat measuring equipment would, in a large measure, solve the difficulties that prevail.

Such practice might well be considered by large operators where extensive development is being carried on in areas where movement of bits to and from the wells is possible.

The lack of such resources must sooner or later result in operators installing at the drilling wells improved heating furnaces. The walls, floor and

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The Amory gas well in Monroe County, Mississippi, proves these geologists were wrong in their conclusions.

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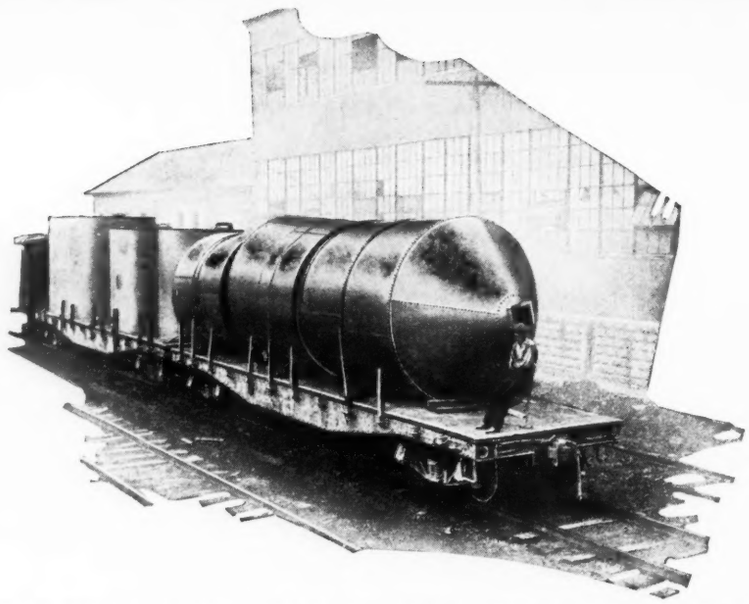

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top of such a furnace should be much heavier than now generally in use to best hold the heat and insure even temperatures, and the furnace closed to the greatest possible extent during the operation of heating the bits. The steel should be heated slowly. Steel requires time in order to have the heat soak through and this is not hastened materially by inducing undue forging temperatures.

Extreme high temperatures merely heat the outside of the steel faster than the steel will transmit the heat by conduction to the center, so that the outside may be made extremely hot, while the metal inside is at a very much lower temperature.

Speeding up the necessary heating periods for dressing and tempering only defeat the purpose, which is, drilling the greatest possible number of feet of hole per bit dressed. The temperatures for dressing heats can vary safely from 2000° to 2100° Fahrenheit. Best results in tempering will be obtained by heating the steel from 1450° to 1500° Fahrenheit.

The impression should be corrected among workmen that the hotter they heat the steel, the harder it can be tempered; that is not a fact. The introduction into the industry of a general practice of dressing all large sizes of bits by some acceptable mechanical means would: First, relieve the crew of much of the hard laborous task with ram and sledge, and; second, the crew would realize the bit could be dressed by such means quite easy enough without heating to a soft white heat, or higher than 2100°.

Mechanical means that would deal 25 to 50 hammer blows against the fact of a bit in the same time one sledge blow can be delivered, would go far toward the completion of dressing many bits in one heat.

Next in importance, following the dressing operation of bits, comes the need for reasonable practice of quickly cooling the dressed bit in the slack tub. By the word reasonable we mean the use of a tub large enough to contain a quantity of clean water, consistent with the size of the steel to be cooled. Unless a liberal quantity of cold water is being delivered into the slack tub to agitate the water and displace the water heated by contact with the hot steel there will be no effect toward hardening the steel, for there will form all about the surface of the hot steel a thin pocket of steam which does nothing less than keep the water from contact with the steel; this condition must be broken up by the admission of cold water under controlled pressure. Hot water of 110° has little or no influence toward tempering steel.

These subjects, and perhaps many others of like importance may well have the consideration of the American Petroleum Institute looking toward the furthering of such research work as will prove that many of the everyday duties in field practice can be improved.

Use of Air-Gas Pressure Restoration Successful in Most Cases

By J. E. Roth
Engineer, Tidal Oil Co., Tulsa

Delivered at Group Meeting on Oil Production Problems, American Petroleum Institute, Tulsa, Dec. 8, 1926

THE gusher of today becomes the stripper of tomorrow. It is this ever-growing number of strippers which form the backbone of the oil industry as well as the source of its greatest worry.

The vital problem confronting the industry today is—what can be done to increase the ultimate recovery from these old fields, many of which have reached their economic limit under present operating conditions.

The importance of this problem can be appreciated when it is realized that from 70 to 90 per cent of the original oil content remains in the sand after pumping becomes economically unprofitable, according to practically all leading authorities on the subject. This, of course, refers to fields producing from sand formations and dependent upon gas for propelling force, as much higher recoveries have been obtained in fields subject to water encroachment.

The Smith-Dunn or Marietta process, named after its originators or the place of its origin and first success, has been in use for about fifteen years and boasts of a very high percentage of success. It is now sweeping the Mid-Continent field as vacuum did a few years ago and we hope that it will receive more study and care and thus gain a more uniform success than did vacuum.

Since its inception there has always been some controversy over the use of air in place of gas and it might be well to make our position on the subject clear.

Gas gives more satisfactory operating conditions with average equipment and less dilution of gasoline content in case a gasoline plant is taking your gas and returning residue than does air. Also, various recent experiments by leading technologists show that gas is three to four times as soluble as air under the same pressure in oil and lowers viscosity while air increases it.

To offset the above enumerated advantages is the all-important question of cost. Air is free while gas may be free or may cost from 10 to 35 cents per thousand cubic feet. This cost item may be pretty large when you plan to use about a million cubic feet per day. In time, if you have return gas lines and cycle the gas that you put into the ground you may build up a sufficient volume in your system but the cost of obtaining that volume may be prohibitive. J. O. Lewis, in some laboratory experiments, found that while gas is more soluble that air would force more oil out of a sample than would gas so this must also be taken into consideration.

Uses Gas Where Available

WITH such a situation confronting him the operator in most cases uses gas where it is available at the cost of installing a return gas system and when it is expensive resorts to air alone or air-gas mixtures.

In case of air-gas mixtures the operator exposes himself to the dangers of using explosive mixtures in his lines and compressors. In our case we have found that in places where the gas volume is sufficient to give a reasonably safe mixture under normal operating conditions that in times of engine trouble and frequent starting the system passes through the danger point and now and then something touches things off and the lines explode. To do away with such dangers and still utilize all available gas it seems better to cut down on compressor size and use two or more small compressors in place of one large one. By this method gas can be pumped into one part of the field and air to the rest of the field by separate compressors. As the gas volume increases more and more of the field may be put on gas and in any case this will protect your fuel supply as you will not be diluting it with the continual addition of air. The smaller units thus give you flexibility, safety, and more continuous operation at a small increase in investment.

A Typical Installation

LET us take a hypothetical property and describe the methods used in installing and operating it, bringing out the difficulties and advantages of operation under pressure as well as the results to be expected as indicated by the various properties operated by us.

In deciding upon an air property the more detailed the preliminary work and analysis, the more likely the operator is to get good results. All properties are not well adapted to pressure applications and if failures are to be kept to a minimum the importance of the preliminary work must be stressed.

The first step in considering a property for pressure should be a survey of the pool showing oil wells and dry and abandoned holes. Then all available well records and information concerning the property should be assembled. The more you know about abandoned wells, sand and water conditions, tight and loose streaks, gas streaks in the top of the oil sand, volume of casinghead gas, thickness and uniformity of the sand, and present individual well production, the better your chances of success.

In studying the above data if conditions show good sand thickness, high initial productions, absence of gas streaks in the oil sand or, if there is a gas sand the presence of a break between it and the oil sand and absence of broken sand throughout the field you have a favorable property.

At this point you must consider your holdings in relation to the pool as a whole. If your property is well blocked by keeping pressure wells back from your boundary and in cases of vacuum fields continuing the use of a high edge vacuum to prevent pushing the oil over to your neighbor's property you may go ahead without regarding them.

If your property is rather scattered you must consider your neighbors. The best method of operation seems to be for a whole pool to unite under the unit system. Each owner's interest in the pool as a whole can be determined by some competent engineer and then one of the group acts as trustee and operates the entire pool. This avoids duplication of equipment, reduces operating forces and permits the pool to be handled as a whole without regard for the former property lines. Our first plant, which has been very successful, represents such a system as it is owned by the Tidal Oil Co. and the Prairie Oil & Gas Co., but operated as a unit by the Tidal—the Prairie being liable for a certain percentage of the expense and receiving a certain percentage of the income.

Gasoline Plants Included

THIS method permits the bringing of gasoline plants into the consolidation on the percentage plan. Their system is used for return gas—the engines can be converted in the plant and the whole property put on air cheaper than by leaving the gasoline plants out and fighting them. This permits the gasoline people still to derive some returns on their investment and offers the best solution yet introduced for satisfying all parties.

Where air is being put on adjacent properties the owners often get together and put air on two wells directly opposite each other at the same pressure. This method permits operating your property right up to the boundary lines but is rather wasteful of air or gas and a better system is to

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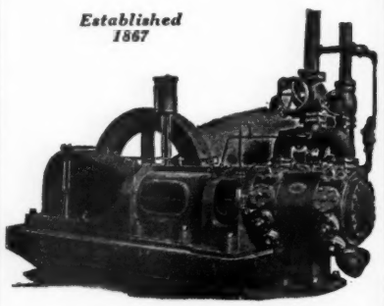

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drill alternate pressure wells along the boundary lines. These wells are for pressure, only, and the owner furnishes pressure to one well and the other owner furnishes pressure to the next one and so on down the line. Of course, it is understood that the pressure will be the same on all of these wells.

Now in case you have worked out an agreement with your neighbors or have decided to go ahead anyway, the next step is to make some cross sections of your property and pick out a few logical air wells which can be cheaply tested by a portable outfit. This gives you an idea of what pressure will be required and what volumes you can force into the sand. You are now ready to install a regular plant with some idea of cost and from the experience of properties of similar sand conditions, with some idea of results.

In the first place it seems to take about one of every five wells as a pressure well to adequately cover a property with pressure. Dividing the total number of wells by five will give a rough idea of the number of pressure wells required which multiplied by the average volume taken by test wells indicates the ultimate capacity required by the plant. Knowing the capacity required and the amount of line needed to reach the various wells and the pressures required for operation, it is now a simple matter to estimate the cost of your installation.

Estimated Costs

FROM our experience the cost seems to average around $500.00 per well for plants of from 60 to 90 wells. For smaller plants the cost will run as high as $800.00 per well and for large plants of from 350 to 450 wells may run down to around $300.00 per well. This applies to an up-to-date plant having an adequate pressure system and a complete return gas system in shape to last from 10 to 15 years without undue replacement charges. This cost is cut down if there is a vacuum system already present for conversion.

The construction of one of these plants is about the same as that of a gas booster plant or an old style compression gasoline plant. We use air cooled intercoolers and hook the air intakes of the engines to the gas lines by means of bypasses to permit the use of very lean mixtures in the engines. In cases where we are handling gas we have to install coils to catch the gasoline condensed in order to keep our lines clear of fluid.

Air Wells

ALONG with the construction of the plant every other well, as decided upon by studying conditions, is installed. This starts air all over the property and the remaining wells are added as a need for them appears.

Pressure wells are made in several ways, depending upon conditions. In low pressure areas where the casing is set rather close to the sand the air or gas can be turned directly into the casing. In most cases, however, packers are set just above the sand so that one knows the pressure is being confined to the sand itself. Some people use rubber packers and they are fine where you have good records and have good information to set them against. Many people use rag packers on tubing and cement them—this gives a good job but in case you wish to change pressure wells you can do nothing to a cemented hole without a machine. As an improvement on this method, many operators now run a couple of joints of 4 inch on the end of their tubing and cement this in. As there is a left-right collar at the top of the 4 inch you can get loose and put the well back to pumping if you so desire. That you may desire to change pressure wells especially those used at the start, we cite the case of Plant No. 1 of the Tidals, where four of the original six pressure wells have been abandoned for one reason or an other.

Many people seem to think that with pressure starting into their sand all that is required from then on is to watch the tanks so that they do not run over. In reality their problems are only starting.

To permit us to keep close tab on what is taking place, all of our oil wells are tested monthly for increased pumping time, casinghead gas volumes and air content on properties where air is introduced. All pressure wells are tested frequently so that we know which ones are doing the work and when the pressure should be raised or lowered. Any sudden increase in volume in both an oil well or nearby pressure well indicates blowing through and steps must be taken to prevent it by putting back pressure on the pumping well, pinching in the pressure well, or both. For slight back pressures raising the tubing is sufficient and if that is not sufficient, we shut the well in and put a Cummins spring standing valve in to permit pumping against pressure.

From the above data maps of the area affected by pressure are drawn each month. These maps of the properties tell the story of rapid spread over the loose parts of the field and little effect in the tight sections. From studying such maps as they are made up it soon becomes apparent where air wells must be added and pressure raised.

Corrosion and Cutting

AMONG the problems bothering the operator, along with blowing through and bypassing, are corrosion and cutting. In areas where there is little or no water in the sand we are not bothered at all, but where wells were too heavily shot and water has appeared corrosion and cutting become a source of much trouble, increasing operating costs due to pulling, and lowering revenue due to bad oil.

On one of our properties and on several other properties in the state the action of air on the water produces a reagent which will ruin an ordinary ball and seat in two days time. Analyses do not indicate, as yet, exactly what is forming. We are having some success

with non-corrosive equipment but it does not last long.

On this and on some properties where corrosion is not causing trouble the pressure is causing cutting in presence of water. This cutting is due to two sources. One source is due to fluttering the ball in the standing valve because of gas. This can be stopped by long gas anchors or using Cummins spring seating standing valves. Where oil is cutting some into the shot hole some satisfaction has been derived from washing the walls with gasoline pressure. The hypothesis behind this treatment was that the cutting is due to so many pores in the sand surface being stopped up that the oil coming through the few remaining pores entered the shot hole in a turbulent condition and cut. This seems to be true in many cases as indicated by the success of the gasoline baths.

(a) Economic Factors Affecting

CASINGHEAD Gasoline and its Connection with Pressure Applications.

The status of gasoline plants in old depleted fields has caused much worry on the part of their owners. On several of our properties we ran into this problem and have had to solve it as seemed best under the circumstances. At Plant No. 1 the residue gas tested 4.6 gallons per thousand cubic feet and with a volume of 165,000 cu. ft. per day, gave a yield of 600 gallons. We pumped in gas and air mixed at this plant and the gasoline content was soon down to .28 gal. per thousand. This gradually increased as the cycling continued until two years later it was 1.56 gal. per thousand with a volume of 560,000 cu. ft. or 874 gallons per day. Due to compressing the gas and having all this condensate in the lines we had to install coils from which we take 200-250 gallons, per day. These coils do not have water over them and were installed as a drip proposition to keep moisture out of the system more than as a gasoline project so their efficiency is not high but they are giving us a nice bit of revenue. At other plants gas is being put back into the ground and this recycling is giving the gasoline plant more gasoline than ever due to increased volumes although the mixture itself is leaner.

Another item to offset the old gasoline revenue is the increase made in gravity. Under the old vacuum system gravity was pulled down by the lowering of boiling point of the oil by vacuum. The pressure does away with this effect and the solution and expansion of air, or gas, under pressure enlivens the oil and increases the gravity around two degrees.

When you consider this gravity increase, along with the increase in production and the fact that considerable gasoline can still be obtained, it becomes apparent that many little gasoline plants would be more profitable to their owners in the form of pressure plants, with gasoline as a side line.

(b) Drilling on Air Properties

OUR reason for quoting Plant No. 1 so often is due to the fact that it is the only one that is old enough to give much idea of what to expect in this region and because many ideas have been tried out there and not because it is an exceptional example of a successful plant.

Thinking that considerable oil was being lost, there, due to a lack of wells in certain areas, fourteen wells were drilled and equipped at a cost of about $40,000.00. Looking for results of this campaign, take the Susan Adair and Levi Adair No. 2 leases upon which five producing wells were drilled in abandoned acreage along the east side of the pool. These wells have only averaged a barrel per day, net, since they came in and as air had reached them when drilled they have little chance of increasing so that it will be some time before they pay out. The rest were drilled here and there through the pool where it appeared that another well was needed. Two of these were used as air wells and two were dry holes on the edge of the pool. It is doubtful if the remaining ten wells ever produced more than ten barrels, per day, net. So this must be considered rather expensive production, especially as it was only along the edge of the pool that there was any oil that could be considered unattainable from existing wells, as the central areas drilled would probably have been ultimately affected.

(c) Operating Cost

SUCH troubles as corrosion, cutting, and increased pulling due to them, increase operating costs considerably and that subject had better be discussed.

Besides the above mentioned troubles a good deal of equipment has been added to the property so that it is surprising to find that in efficient plants that the total cost is not greatly increased.

To begin with, the increased production lowers the cost per barrel. Then in many cases it is satisfactory to pump but three times a week as the pressure causes the wells to head up and almost as much oil can be gotten every other day as by daily pumping. This permits doubling up pumpers and reduces the operating force.

Then we use only one operator on the plant and he farm bosses the property. No night man is used as the operator lives close to the plant and with the protection of automatic shutdowns for lack of water, and loose connecting rods, is able to keep the plant operating the full twenty-four hours.

The number of roustabouts remains almost the same and in case of a consolidation of several properties might be decreased by taking away a lot of duplicate machinery.

From this it becomes evident that the pay roll does not increase so the only increase in cost comes from more pulling and the repair parts and labor bill for so much added machinery.

(d) Production

WE have ten plants which have been in operation for at least four months and all but two appear extremely successful.

In the case of one of the unsuccessful plants, we have doubled production but are not making a return on the increased investment, due to the high operating charges caused by corrosion and high plant pressure.

Pumping equipment gives lots of trouble due to corrosion and we are spending money to shut water out of a lot of wells where the casing is eaten through. The sand body is rather shaley and requires a high pressure which is hard on the equipment. In view of our present experience, I doubt if this property would have been put on air if it had come up now instead of over a year ago.

The other property having trouble is very small—only eighteen wells and is on Peru sand of a very tight nature. It required six months of pressures over 400 pounds to get results and although we now have a two and one-half times increase the property is badly "in the red" from the expense of operating against such high pressure and for so long without result. It is one of only two Peru sand installations showing real production increases so far as we know, and is for that reason rather interesting. We have our machinery in shape, now, and with this increase established this property may start returning dividends.

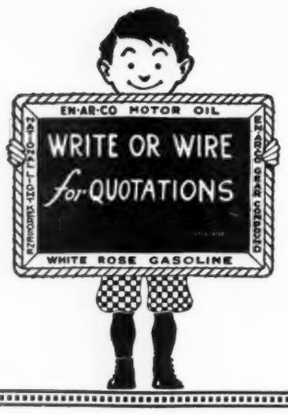
We have tried only one property of semi-settled production and that has been very successful. This property was declining rapidly when pressure was installed and now shows a 75 per cent increase over the figures just before pressure was put on the sand and is still climbing.

The rest of the properties were very old and just about at the economic limit of usefulness. We have gotten from a three to five time increase on them and there are individual leases which have shown from twelve to fifteen times increase.

Such increases certainly seem worth while, especially if they can be held for any great length of time. That they can be held to this high figure of increase seems evident when it is known that many eastern plants that are from 13 to 14 years old are still making more oil than when pressure was installed and they do not have the sand body which our plants possess.

Pressure has been tried on the Bartlesville, Peru, Wayside, Hoover, Tucker and Burgess sands of Oklahoma; the Peru, Red sand, Bartlesville and Shoestring sands of Kansas and the shallow sands of the Cisco and Wichita Falls area of Texas. Results have been good on most of these sands. The Peru, Tucker and Burgess have given the most trouble and in Kansas many plants failed near Chanute but most of the failures have been due to inadequate equipment rather than any fault of the sand itself.

NEGAUNEE, MICH.—Granlund Oil Co. has just moved its offices to the McDonald Block here, where it will have larger quarters for its tire, radio and accessory departments. Marquette county is covered by the company. G. R. Granlund, partner and manager, reports gasoline sales have slumped with the coming of four to six feet of snow. Radio sales are rushing, he states.



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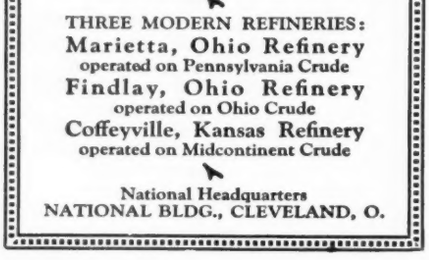

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Skelly Team Wins Annual First Aid Contest

TULSA, Dec. 20

DISPLAYING faultless form in the pinches and taking full advantage of its opponents, breaks and fractures, the Skelly Six from Webb City, Okla., bandaged, bound and manipulated its way to victory in the second annual Petroleum First Aid contest.

The meet was held during the convention of the American Petroleum Institute, and took place in the Crystal ballroom of the Mayo hotel. The Skelly team's showing was all the more remarkable when it is remembered this was its first game on an indoor course. The winners made 793 points out of a possible total of 800, which entitles them to a high ranking in the American Association of Amateur Aiders.

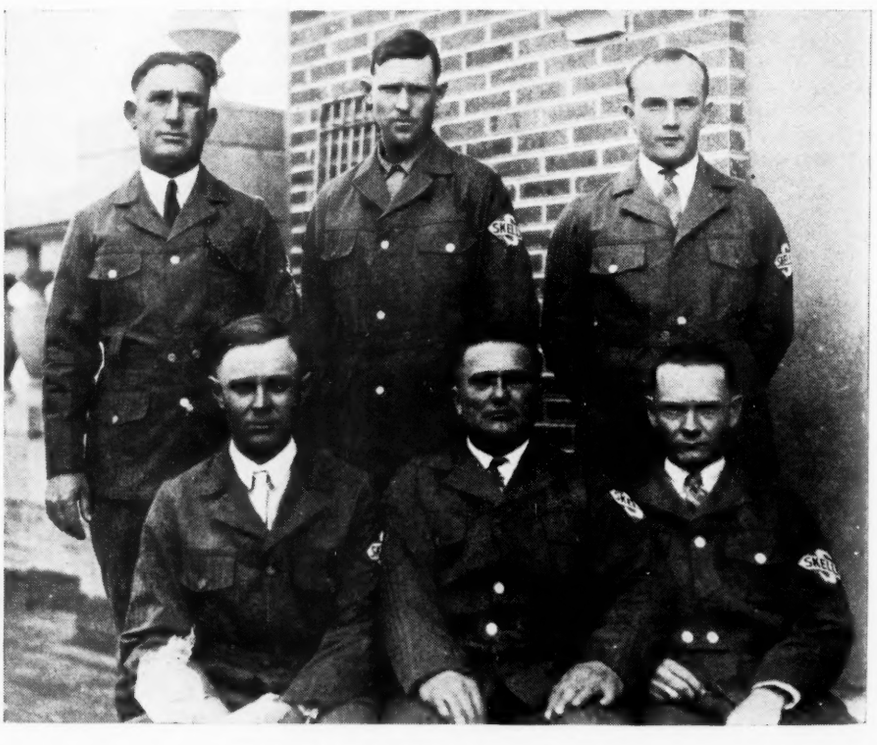
By way of contrast, and showing the keen competition that the winners had to surmount, the other Skelly team, hailing from Eldorado, Kans., finished in 13th place, with a score of 778. Second place went to the team of the Empire Refineries, Inc., from Okmulgee. This team lost out only by a wrinkle in a bandage, scoring 792 points. The Gypsy Oil Co. team, another bunch of Webb Cityans, finished third with 789. The Empire organization had three teams entered. Its Ponca City representatives finished in a three-cornered tie for sixth place, with a score of 786, and the Cushing team ended in 11th place, scoring 780 points.

Four problems out of 15 previously sent out to the teams were selected for the contest, with 200 points for perfect score in each problem. The first of these was stated as follows:—"Fireman burned by flashback. Burns on entire body above waistline, including head, neck, upper extremities, chest and back. He is conscious, but in state of shock." The men were allowed eight minutes to work on this problem.

Time Limit 10 Minutes

THE other problems included one in which a still-man had fallen after stumbling over pipe, sustaining several severe injuries, another in which a tank cleaner was supposed to have been suffocated by gas in a tank, falling and sustaining several injuries. Each of these problems had to be worked out in 10 minutes. The last problem was one in which a pipe liner was severly injured by tongs slipping on pipe, and the teams were given nine minutes to fix him up in shape to be taken to the hospital.

Ray E. Miller, until recently director of the Petroleum Safety Council of the Mid-Continent Oil & Gas association, but now occupying a similar position with the Marland companies, was in charge of the meeting. Prizes consisted of a silver loving cup awarded by the International Petroleum Exposition, six silver and six bronze medals awarded by the National Safety Council, Chi-



Skelly Oil Co.'s Winning First Aid Team
From Production Department, Skelly Oil Company Burbank District, Webb City, Okla. Top, left to right: Charles C. Starr, captain; W. B. Wood, Bruce J. Perry. Lower: Homer Gilbert, T. W. Giles, A. C. Day

cago, six home first aid cabinets awarded by the Mine Safety Appliances Co., Pittsburgh. In addition, each member of each competing team received a Conklin pencil from the Petroleum Safety Council.

All members of the Skelly Oil Co. prize-winning team are from the production department in the Burbank district, Osage county. They are:—Charles C. Starr, captain, W. B. Wood, Bruce J. Perry, Homer Gilbert, T. W. Giles, and A. C. Day.

Timekeeper was H. E. Cabiness, Panhandle Refining Co., Wichita Falls, Tex. Recorders were R. J. Lauder, Roxana Petroleum Corp., St. Louis, and E. D. Murphey, Mid-Continent Petroleum Corp., Tulsa. The contests were decided by 12 judges. Chief judge was C. A. Herbert, of the U. S. Bureau of Mines.

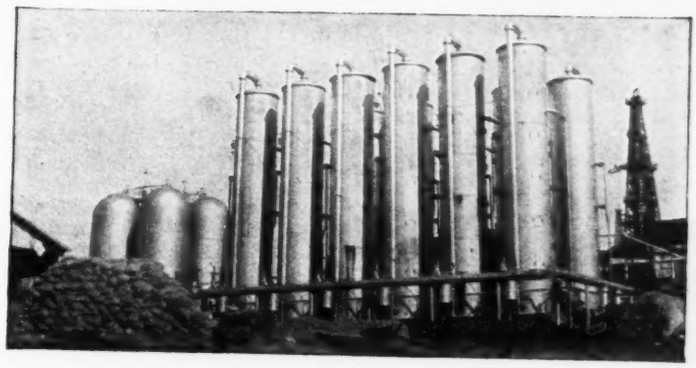
Gulf Drilling Third Test In California

LOS ANGELES, Dec. 18.—Another test is announced in the Bakersfield district, Kern County, and drilling is expected to commence shortly according to requirements of some leases in the area which call for a well to be started within the next six months. The test is to be drilled by Hoyt S. Gale on a tract of approximately 2000 acres in a practically solid block leased in the immediate southern outskirts of the city of Bakersfield. Mr. Gale's operations in California are not for the Gulf Oil Corp.

The block leased centers about two miles south and east of the center of the business district of Bakersfield and adjoins the city limits. This acreage lies just east of Union Ave., which is the State highway running south out of Bakersfield via the Ridge Route to Los Angeles. The district is one of much divided ownership of which practically all larger parcels are joined in the project.

Prospects for production in a district like this are uncertain, being situated in a flat valley where the land surface gives little indication to judge the underlying geology. The borders of the San Joaquin Valley on this side below Bakersfield have generally been regarded as comprised of recent deposits from channels of the Kern River, which stream has shifted from one course to another over a diverging fan or delta as it spreads into the open lowlands toward the valley center.

The test may be regarded as having a prospect to show something of interest concerning the east side of the valley opposite the Kern River field. To an extent the test is of the same order as the tests lately drilled by the Shell Co. at Mountain View School, Weed Patch, the Rosedale test west of Bakersfield and the Union Oil Co.'s Rio Bravo test, somewhat north of west from Bakersfield, although none of these tests is known to have had any oil showings.



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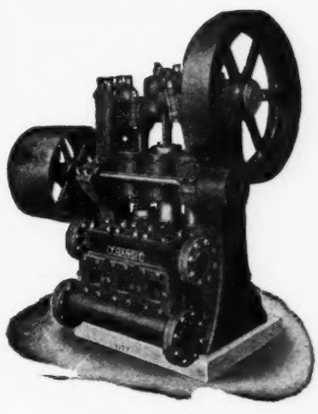

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Failure of Rig Irons Often Due to Usage In Manner Far Beyond Safety Limits

By W. H. Jeffery
Toledo, O.

Presented at Tulsa Meeting A. P. I., Dec. 8

IT is a far cry from the light and crude set of three and one-half inch rig irons that served every purpose thirty-five years ago, before calf wheels had been thought of, and which could be bought, including a wood sand reel, for $70.00, to the six inch chain driven outfit of today costing around $1,000.00, exclusive of sand reel. The requirements of deeper and still deeper drilling, necessitating longer and heavier strings of casing, have demanded better and heavier rig irons.

The rig iron manufacturer has striven to meet this demand and has risen to the occasion with a continuously improved and strengthened product. For example ordinary steel shafting formerly was used for band wheel shafts and to meet the demand for heavier equipment the size was increased to a diameter of seven and one-half inches. Now the six inch shaft is the largest size used, but it is forged from 35-45 carbon steel and, at two-thirds of the weight, is as strong as the seven and one-half inch shaft. Improvement has extended also to the rig itself and the modern steel derrick is a model of efficiency as compared with its wood predecessor.

Most of you, I believe, are quite familiar with rig irons. They consist of all the iron and steel parts of the rig, the wood cants for the bull wheels, band wheel and calf wheel and the necessary nails, bolts and washers used in building the rig. They are first equipment to be provided when a well is to be drilled. They must be used continuously during the drilling of the well and for fishing operations, if there be any, used occasionally when a flowing well is swabbed and thereafter, in the case of deep wells, they continue to be used for pumping and for pulling and replacing the tubing and sucker rods during the life of the well which may be twenty-five or more years.

Safety Limits Exceeded

THE diameter of the band wheel shaft is the unit of size and weight for rig irons and it is my opinion that they sometimes are specified as four and one-half inch, five inch or six inch without careful thought as to which of these sizes would be most suitable for the depth of the well to be drilled or the quantity of casing to be handled. Many wells have been drilled with rigs using five inch rig irons where it was intended to drill to a depth of 3,000 feet, but when that depth had been reached it was decided to go deeper, to 4,000 feet or even 5,000 feet, necessitating much longer and heavier strings of casing. Quite often the five inch rig irons finished the well, but the limits of safety for those irons had been passed. Conversely some operators, particularly those from California, can never find equipment too strong or too heavy and sometimes have used six inch irons for work in Mid-Continent territory where five inch would have been adequate. When drilling test wells in new fields it is wise to provide rig irons capable of drilling at least 1,000 feet deeper than it may be thought necessary to drill.

It is my belief that an engineer or operator in other pursuits, mining for example, would be amazed at the loads and the occasional strains to which rig irons are subjected. Let us consider the load on a set of cast iron calf wheel gudgeons during the operation of putting in a string of 4,000 feet of 38 pound casing weighing 76 tons, or in the attempt to move such a column of casing that might have become "frozen." And in the latter case there is the unknown, but inordinate, stress on these gudgeons when the driller throws in the calf wheel clutch and then races his engine up to the load in the hope that something may move.

Strains on Equipment

THE sprockets and the chain of the calf wheel equipment get a severe play in this operation of attempting to free frozen casing, but beyond the occasional loss of a tooth or the breaking of a link of the chain, these parts usually play well their part. Clutch sprockets have been broken while the derrick is being rigged up and before drilling is commenced by the attempt to put on the chain by the quick method of fitting a few links on the sprocket, then starting the engine and snapping the chain over the wheel.

Observe this driller in his attempt to switch loose a string of fast tools. The walking beam moves alternately from its lowered position with the cable slacked, to the top of its stroke where the tension approaches the breaking point of the cable, and the center irons must absorb the shock of this "fast and loose" operation.

We now come to the shaft and crank, the latter made of cast iron. Forgings and steel castings have displaced cast iron for cranks used in other machinery and a few forged cranks have been used on rigs in foreign countries, but the cast iron crank still is used for drilling purposes in this country, although constantly made heavier in the attempt to meet the demands upon it. All the power for operating the rig is transmitted through the shaft and it must share with all the other rig iron parts these fishing and other superstrains. Drillers occasionally attempt to free drilling tools that are stuck by the "tight hitch," instead of using long stroke jars. This is done by taking a tension on the cable, then "hitching on" the temper screw and perhaps taking up a little of the screw, then turning steam into the engine until the shaft turns over. This puts a severe strain on shaft, crank, flanges and jack post boxes and sometimes results in a bent, twisted or broken shaft, the sight of which is mute evidence of loads greater than such a shaft was intended to bear.

Primitive Gudgeon Boxes

WHO, upon observing the operation, has not marveled at the confidence a driller displays in his bull wheel gudgeons when he lowers a heavy string of tools to the bottom of a deep hole? He allows them to drop freely with constantly accelerating speed, only to bring them to a more or less sudden halt by application of brakes that shriek and smoke, causing the whole rig to shudder and, occasionally, one end of a girt or brace to tear loose. Here is an unknown strain on cast iron gudgeons and their boxes. Did I say boxes? Let us pause for a moment and examine these so-called boxes. They are merely holes bored in the wood bull wheel posts which soon wear oversize and cause the bull wheels to jump up and down. In this day of improvement in drilling practices and equipment, does this not seem a crude holdover of primitive methods of earlier days? I should think the engineer in other pursuits would frown upon this. These woodpecker holes for boxes that soon enlarge and the flimsy manner in which the gudgeons sometimes are bolted in the decayed end of a bull wheel shaft are sufficient answer to the question "why do bull wheels break away and lift toward the crown block, tearing the derrick to pieces in their flight and endangering the lives of the drilling crew? Is it not time that adequate

iron boxes were provided with bull wheel gudgeons on wood derricks?

Oversize Ropes Not Efficient

SOME drillers use three inch bull ropes instead of the two and one-half inch ropes for which the tug and the bull wheels are grooved, possibly for additional strength. This is unnecessary, for the smaller ropes will transmit all the power that the rig uses; also the larger ropes have a tendency to wedge into the smaller grooves of the wheels, and the oversize splice bumps over the rims of the wheels with every trip of the splice. Not an efficient arrangement to say the least.

The old wood bull wheels have well served their purpose, but due to the severe demands of deep drilling and to the increasing difficulty of securing clear sound lumber from which to make the cants and arms, their day is passing. The danger of the bull wheels "blowing up" diminishes in proportion to the increase in the use of steel wheels. An idea of the force liberated when a set of bull wheels bursts may be gained from an incident in the Tonkawa field. The tug rim of a set of steel wheels which had been broken by the teamster and had been acetylene welded burst and a segment of the rim weighing 135 pounds was projected a distance of 225 feet.

And what about the crown pulley, the sand pump pulley and the casing pulleys? Reflect upon the service these casing pulleys must perform during the operation of putting in the long string of casing previously mentioned. And when the driller, attempting to free frozen casing, pulls a few feet of slack of the casing line off the calf wheel, then races the engine up to the load, the casing pulleys must get a considerable shock when that slack line is snapped up. Have you ever noticed the neat groove cut in these pulleys by the biting wear of the wire lines. And this recalls an amusing incident. A producer with little field experience had borrowed from a neighboring operator a crown pulley for a portable rig similar to that he was using. This pulley became damaged and he ordered a new one from the manufacturer of the rig to replace it. When the pulley was received he complained to the agent that it had no wire line groove, but he was assured that the pulley was the only kind that could be furnished. Thereupon the producer took the pulley to a machine shop and had a groove turned in it, so he was able to return to the lender a pulley exactly the same as the one he had borrowed!

Line Cuts Dangerous

APROPOS of crown pulleys, I once saw a pulley from which the wire cable had gradually sawed a section of the rim, and the broken off piece narrowly missed one of the men when it fell to the derrick floor. All of the pulleys in the crown block should be watched for line cuts and when these get too deep such a pulley should be replaced with a new one. The manganese steel pulleys that are coming into use resist the cutting action of wire lines and they are recommended for deep drilling and for handling long strings of casing.

Let us look at the jack post boxes. Many times I have seen the jack posts weaving drunkenly to the motion of the crank, for it seems utterly impossible to so brace or key the jack posts on some rigs that they will not rock. Much of this lost motion must be absorbed by the jack post boxes. And when the tooldresser neglects to tighten the nuts that secure the jack post box caps, allowing the caps to jolt up and down and the shaft to pound, the resulting vibration spreads over the entire rig and what happens to the babbitted bearing can be left to the imagination.

When first I became acquainted with rig irons wood in sand reels only were used. But the day is past when the lagging stripped off a wood sand reel and flew through the derrick like pieces of a bursting shrapnel shell. I once knew a driller who was killed by such a piece of flying lagging striking him in the head. But the demands of the three joint casing bailer and of the thirteen inch bailer twenty-five feet long carrying nearly fifteen hundred pounds of water required metal. And now we have the modern chain driven sand reel with clutch, whose advent marked another notable advance in well drilling equipment.

Sand Reel Neglect

THE sand reel sometimes comes in for a little neglect that spreads contagion to other parts of the rig. Drillers may fail to tighten the key that secures the friction pulley to the shaft, causing the pulley to shift. This makes of the beveled pulley a wedge against the face of the band wheel, the usual result of which is the twisting of the sand reel shaft, the tearing of the face of the band wheel and damage to the belt.

The old wood pitman with its wood key, providing a crude but quick means of slipping it on and off the wrist pin, is going the way of the wood sand reel. The modern steel pitman with suitable wrist pin bearings is its logical successor, for the pitman must make a reciprocating movement for every revolution of the band wheel.

With the best built wood derricks there always is a vibration during drilling, causing the twenty or more keys in the mortices in the timbers and posts to loosen or pull out. If these keys are not frequently inspected and driven in when needed the lost motion of the posts places an added burden upon shaft, crank, flanges, jack post boxes and center irons.

Lubrication of rig iron parts is often overlooked. These parts should be lubricated the same as any other machinery. Jack post boxes, gudgeons, center irons and calf wheel chain should be greased and crown pulleys should be oiled frequently.

Rig irons should occasionally be inspected during use, the cast parts for cracks, the calf wheel chain for deformed or weakened links, loose nuts tightened and loose keys driven in.

Production Abuses

AFTER the well has been finished rig irons enter upon an undetermined period of service in pumping, during which they sometimes are subjected to hard and to unusual use and perhaps to abuse. There are many contrivances for securing a long pumping stroke, one of which is the crank with long throw. I have known of cranks more than twice the length of the regular crank to be used on the same size shaft that had previously been used for pumping the same well. Now it must be obvious to any thinking man that doubling the length of the crank throw must much more than double the torque upon the shaft; yet in few instances, I believe, is the size of the shaft increased when a long stroke crank is used.

The swabbing of deep wells, particularly with some of the newer type swabs, subjects shaft, crank, flanges and bull wheels to severe stresses. It appears to be the common practice to lower the swab into a well filled with fluid, then to reverse the engine and at full speed lift the swab against this excessive load and pressure. This may be comparable to starting your auto in high. If the swab were started upward at the point of heaviest load slowly, then as the column of fluid lightened the speed were increased, severe strains on the equipment could be avoided and with little loss of time. I have known of heavy pipe bull wheel shafts being reduced in diameter to the point of failure by swabbing operations.

Unusual use often is made of rig iron parts, such as center irons for rigging walking beam counterbalances, calf wheel shafts with gudgeons for pull rod swings, shaft and crank with a short two hole crank for connecting a second well with pull rods, and other devices, for the oil producer is resourceful in turning his accustomed equipment to new and ingenious uses.

As the well declines in its production and the derrick sills decay and the keys fall out the lost motion of sampson post and jack posts slowly but surely increases, resulting in a constantly growing burden on the rig irons in their old age.

My remarks must not be construed as in the nature of criticism of the driller and his methods of work. I have the highest admiration for the American driller, for his resourcefulness, for his self-reliance in emergencies, for his ability to overcome difficult obstacles, for his fearlessness. And

"—AND NOW, SAINT NICK, WE OF THE OIL INDUSTRY BELIEVE THE TIME NOW PROPITIOUS FOR YOU TO DISCARD THIS ANTIQUATED SLEIGH AND REINDEER AND ACQUIRE MOTORIZED EQUIPMENT. THE OIL INDUSTRY IS READY AT ALL TIMES TO SERVE YOU----" ETC., ETC., ETC
SEDGWICK

IT SURELY IS HIGH TIME A COMMITTEE WAITED ON THE OLD GENTLEMAN

when a driller risks breaking his equipment in an emergency, knowing the contingent danger to his own life, it requires courage of a high order. But the fact remains that the exigencies of his work lead the driller to subject his equipment to strains that in any other craft would be regarded as abuse. The rig irons, then, must be constructed to meet these severe conditions. Thus the manufacturer of rig irons finds himself between the upper and the nether millstones of striving to improve his product upon the one hand and of keeping within the inexorable bounds of his costs of a highly competitive product upon the other. It is, in my humble opinion, to the rig iron manufacturer's credit that he has succeeded in maintaining such a high standard of quality and that he constantly tries to meet the demand for a better and stronger product.

With regard to the future development of rig irons, I am convinced that further improvement in construction and in character of material used will be in direct proportion to the truth that is told to the owners of them by drillers and pumpers regarding the manner in which they use and sometimes abuse them.

EXPORT, PA.—Frank I. Good has completed a modern service station here, which will be equipped with the Erie meter system and with two 12,000 gallon storage tanks. Mr. Good will handle American Oil Co. products.

American Refinery Technologists Charge German "Author" Stole Their Stuff

THE following letter has been received by National Petroleum News from R. E. Wilson and W. H. Bahlke of the Standard Oil Co. of Indiana in connection with the translation of an article by H. Schmidt in Petroleum Zeitschrift, which was reprinted in National Petroleum News, page 85, Dec. 8 issue.

In a note with the article, National Petroleum News called attention to the similarity between the results given in Schmidt's article and those reported by Wilson and Bahlke last year. In a letter to the editor of the German paper, Messrs. Wilson and Bahlke go considerably further. Here is their letter:

"Editor National Petroleum News:

"In view of the fact that you have just published a translation of H. Schmidt's article on "Corrosion in Petroleum Distillation," you will be interested in the following which we wrote to the editor of Petroleum Zeitschrift:

Editor Petroleum Zeitschrift:

We were very much surprised to find that one H. Schmidt had published, without proper acknowledgment, in your Zeitschrift for Oct. 20, 1926, what is essentially a condensed translation of our paper on "Special Corrosion Problems in Oil Refining" which was printed in Industrial and Engineering Chemistry for April, 1925, and in National Petroleum News for June 10 and July 1, 1925. While all the experimental methods, data and conclusions are taken from this article, your "author" studiously refrains from giving any hint of this fact, his sole reference to our paper being a footnote attributing to us the analysis of three commercial samples of metal.

If you will yourself refer to our paper and compare it with that of Schmidt we are sure that you will make proper acknowledgments in an early issue of your Zeitschrift.

(Signed) Robert E. Wilson
W. H. Bahlke."

Testing Standards Sought

TULSA, Dec. 18.—The gas testing committee of the Association of Natural Gasoline Manufacturers proposes to adopt a set of standard specifications for gravity balances and bottles, both special apparatus used in gas testing. The first meeting of the committee to work on standards was held here on Dec. 14. The committee hopes it will be able to complete its work on the subject before the next annual convention of the organization, usually held in April.

Sales Head Should Not Fix Gasoline Price

By Warren C. Platt
Editor

WHO should fix the price at which a refinery sales department sells? Should it be the sales department itself, or the general executive in charge of all operations? Who, today, is fixing the refinery sales price?

These are vital questions that strike at the heart of the price problem with refiners. In our December 1st issue, page 78, we discussed the desirability of refinery sales executives being paid on a basis of dollars of sales, in order that they might be personally interested in the price per gallon, rather than just in the number of gallons sold.

An investigation discloses that nearly all refinery sales departments make their own price. They do it in the morning after they have "sounded out the market," read the OILGRAM and looked at the general condition of the weather. Therefore, the buyer has had a considerable influence on the making of that price—the buyer and the sales of yesterday.

The result is that the sales department makes a price at which it knows without doubt it can move the goods. The question naturally arises then—Is not that price likely to reflect unduly the opinions of buyers and of other sellers?

The writer has found only two refinery executives who do not believe in letting the sales department fix its own tank car price. They were L. L. Marcell, president of the White Eagle Oil & Refining Co., and F. A. Pielsticker, vice president of the Skelly Oil Co., although there may be more. Both men believe that the price should be given the sales department and the sales department required to sell at that price, or not sell at all; in which last event the sales department is on the carpet at once for cross-examination as to why it didn't put forth enough effort to make the sale required.

Seller Not Making the Price

THE writer has found a number of companies, and heard of many more, who in "sounding out the market" of a morning to arrive at their price, really take the OILGRAM price for the previous day and what another man says he thinks the market is, which, investigation has shown, simply was taken from the OILGRAM. In other words, the seller did not actually make the price. At no point was anybody figuring that the market should be a quarter or a half cent higher, and going out and holding for that price.

The market that PLATT'S OILGRAM tries to reflect is from open tank car sales that are made by barter and trade each day. The open tank car market is not affected by contract stuff based on the open tank car market price date of shipment; nor is it affected by open orders, the price to be that in the OILGRAM when it comes out the next morning. Such open orders are simply one day contracts in effect.

But the open tank car market is—or should be—the price at which a refiner by actual barter and trade sells a jobber. It is, or should be, a new transaction that has no relationship to previous transactions.

There is nothing magical about "the market." If everybody buys and sells at "the market" then there is no open market to base those buying and selling orders on.

How Stock Exchange Works

EVERY transaction on the New York Stock Exchange is a separate deal. A man with a thousand shares of stock for sale goes on the floor of the Exchange and offers it at the price he thinks he can get, which may be above the last sale, or he may call for bids on it. At all events he tries to get a better price. He seldom throws it on the stream of stock sales at prices made by somebody else. If any quantity of stock was just casually thrown on a market for a number of hours, the buyers would soon get onto that fact and would bid lower and lower prices and would get the stock at those prices too.

A price is got only because it is fought for, unless it is a cut price. If the sales price of gasoline, for illustration, was given to the sales department of the refinery the first thing every morning and that sales department made to understand that that would be the absolute bottom price all that day, that no bids would be considered from buyers, that there would be no cutting of that price, it would have a considerably different effect upon the sales department than if the sales department knew that, if it couldn't sell at that price, it could come back and get another price, or make another price itself.

Salesmen the world over are about the same in all lines. If they can get a concession from their company, they will do it. If they know that the company is liable to make a concession, it is only a question of time when they will be back to the company for more and more concessions. This applies to the best salesman, as well as to the poorest.

Haven't all refinery executives been conceding too much in price to their sales departments? Wouldn't the refinery situation be better off if each day the refinery executive would set a mark to shoot at and stick to that mark, even though he didn't happen to sell any goods that day? If he went along for a number of days and sold nothing, then he could cut the price; but he would have his sales force fighting for the price that he would set and if he kept edging up that price, he should materially improve his general market.

Will Grant Concessions

IF it is left to the sales department, it is quite likely to grant itself concessions. Just as the salesman will give the prospect a cigar, or buy him a lunch, or take him to the theatre to make a sale, so will the sales department squeeze in extra favors and a lower price, if necessary, to get the order.

An order is an order to a salesman. He likes to get a big order, but nevertheless he likes to get *an order*, because any old kind of an order shows that he has accomplished something, in his own estimation. A one-car order at a half cent below the market is better in his mind than no order at all, providing the employer lets that kind of psychology obtain. Haven't the oil refiners of the country been responsible for that kind of psychology with their own sales departments? Wouldn't they all be better off if they stopped thinking in terms of orders and gallons and thought, and spoke, and argued and fought only in terms of dollars and price?

The pity of the whole situation has been that, for the last four or five years, there has been plenty of margin under the tank wagon price for the refiner to get a good profitable price. There is plenty of margin today. The jobbers would be glad to see the tank wagon price a real price, instead of just a mark to shoot discounts at, as is the case in so many territories today.

The jobber is also interested in seeing that the refiner gets a profitable price for his goods in the open tank car market, because, if he does, the refiner will not go in the jobbing business. It is the unprofitableness of the tank car market for a period of years that has caused the refiner to put in his own bulk and service stations. If the refiner could be assured of a good profit in the open tank car market, it is dollars to doughnuts that he never would go to all the bother and fuss and big investment of running a distributing business.

Isn't the situation entirely in the control of the refiner? He has got his runs well balanced with shipments the past year in the Mid-Continent territory—he has his costs in good shape, but one thing he hasn't done is to fix a new price every day on which he makes his sales department perform.

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

Big Improvement Program at Paragon

H. E. WIDDELL reports that work is far advanced on the new construction being installed at the plant of the Paragon Refining Co., Toledo. The associated Widdell Engineering Co. of Kansas City and Arthur G. McKee & Co. of Cleveland, are handling the work.

The improvements consist of two Dubbs cracking units with a capacity of 1500 barrels a day each, a continuous acid treating plant for pressure gasoline, a gas absorption plant and equipment of a battery of stills with towers for rerunning the cracked distillate. This together with the pumps, tankage, pipe lines and so on required for operation of the new equipment.

Mr. Widdell states also that his organization has just completed the installation of a 3500-barrel pipe still for the White Eagle Oil & Refining Co. at its Fort Worth plant. The still, which is equipped with two bubble towers, is designed to run Panhandle crude.

Three overhead streams are taken off each tower. From one the topmost stream is export gasoline of 64-66 gravity, 375 end point; the next, naphtha of 437 end point and the lowest, kerosene. From the other tower the streams are benzine, furnace distillate of 37-39 gravity and gas oil. Mr. Widdell is planning to move his home from Kansas City to Cleveland about the first of the year.

Refinery Beats Original Expectations

DR. E. R. LEDERER, vice president of the Texas Pacific Coal & Oil Co. in charge of refinery operations, has had the gratifying experience of planning and building a refinery to accomplish certain results and having it, when finished, do a little bit better.

The Texas Pacific Coal & Oil Co.'s plant, which was then under construction, was described in two articles in the May 26 and June 2, 1926, issues of National Petroleum News. In those articles it was stated what Dr. Lederer planned to do. He told me at the Institute meeting in Tulsa that he is getting a trifle better yield of lubricating oil of a better color than he had expected. Contact filtering and centrifugal dewaxing are combined in this plant. Cross cracking units are now being put in to round out the completeness of the refinery.

Adds Anti-Knock Gasoline to Repertory

J. T. B. BOWLES, technologist for the Crown Central Petroleum Corp., tells me that the company is busy putting up three Holmes-Manley cracking units at its refinery at Pasadena, on the Houston ship channel.

It is expected that the new units will be in operation between Jan. 1 and Feb. 1.

The Crown Central is now running about 3500 barrels a day of its own crude from the Mirando field. This crude, Mr. Bowles says, yields no gasoline on straight distillation but does give a very fine grade of gas oil for cracking and excellent lubricating oil of zero pour test.

The Holmes-Manley stills are for cracking the company's gas oil to make an anti-knock gasoline. Mr. Bowles and President A. W. Williams of the Crown Central, were at the Institute meeting at Tulsa.

Announces New Gasoline and Motor Oil

C. A. SOARS, manager of the refining department of the Louisiana Oil Refining Corp. in the November issue of the Loreco Diamond, company magazine, states that a new and improved gasoline and motor oil are now being distributed by the company through every Loreco station, whether operated by the company or by a dealer.

"Improved Loreco gasoline is a pure unadulterated gasoline," says Mr. Soars. "It contains no chemicals, coal tar products, or mixtures or dopes of any kind. Those properties which make for quick starting, long mileage, power and speed have been developed to the nth degree." He states that the company has "enlarged and improved plant facilities, has developed new processes and has perfected methods of control which has resulted in improved products."

Sand Filter Takes Clay Out of Gasoline

A. G. PAGE, general manager of refineries of the Union Oil Co. of California, is using a sand filter, really a strainer, to separate fine clay from his pressure gasoline. The company has four new Cross units with a capacity of 1000 barrels a day each, at its Los Angeles refinery.

It is necessary to treat the pressure gasoline for color. This is done by contacting it with very fine California clay, similar to fuller's earth. To remove the decolorizing material, the gasoline-clay mixture is run through a sandbed. The clay stays on top of the sand while the gasoline goes through.

Sharp Division of Opinion on Sulfur

DR. GUSTAV EGLOFF'S proposition that the permissible sulfur limit for gasoline should be widened has found many advocates among the oil technologists. This developed at a joint informal meeting of the technical advisory board of the American Petroleum Institute and Committee D-2 of the A. S. T. M. in Tulsa Dec. 6.

The question of asking the Federal Specification Board to widen the tolerance from .1 per cent to .15 per cent came up and was put to a vote. It was voted down 17 to 16. It will be interesting to see whether further thought and study on the matter by the technologists will make the vote on the question when it comes up again more decisive one way or the other. It is believed by many that if some kind of crankcase ventilating device is generally adopted on cars, the danger from sulfur will be reduced very much.

Pedalling Around the Refinery Yard

BICYCLES are seldom thought of in connection with a refinery. But they are important vehicles in the West Tulsa refinery of The Texas Co. The refinery is laid out in a long, straight line and the distances about the plant are considerable. There is a bicycle rack in front of the office building, with several vehicles always standing ready. Anyone wishing to make a quick trip to a distant part of the plant jumps on a wheel and rolls away. While not exactly a bicycle race track, this refinery is well adapted to the use of wheels. The space around the Holmes-Manley stills is concreted and there is nothing lying around. Other parts of the yard have been covered with crushed stone which, while sometimes wet and rather soft, is not like the mud often to be found in refineries.

Tentative Schedule of Marketing Cost Accounts Presented to A. P. I.

By Henry W. Ralph
Indian Refining Co.

IT is almost an axiom that good accounting is possible only when accounting follows the facts of business. A conclusion which follows quite readily from this axiom is this: that accounting lines should not be set up on theoretical grounds and the methods of conducting business made to conform thereto; and that any organization which endeavors to impose on its departments an accounting procedure developed by someone unfamiliar with the petroleum industry and their particular organization and methods of doing business, has a very slight chance of success in this endeavor, and will develop in an attempt of this kind many avoidable complications.

In merchandising petroleum products there are so many kinds of branch sales organizations and such widely divergent policies of management and operation, that no standard method for handling the accounting can be successfully developed. It is true that general principles must be correctly followed and it is possible to select and define expense accounts applicable to marketing which will require a minimum of change to make them suitable for the various types of selling units, but it will always be necessary for each organization to make for itself, such classifications of these expense accounts as will result in the development of significant facts with the maximum of clearness and the minimum of effort. Further it will be found that the lapse of time and changes in marketing policies or methods will require corresponding changes in the accounting classification. Those facts which are today considered most significant may in the future seem less significant, and this might be due either to changes in methods of doing business or to the fact that certain elements, by reason of their continued importance over a period of years, have been so well regulated that fluctuation in them becomes a minor consideration.

Tentative Outline

IN presenting this tentative outline of a Marketing Classification, there are enumerated those accounts which have been found by experience to be of practical benefit and helpful in obtaining a marked improvement in marketing. They are presented as a working model rather than as part of a finished essay, as it appears they will be most helpful if presented in this form. When the accounts as defined have seemed especially adapted to a particular type of organization rather than capable of universal application, comment has been interjected for the purpose of assisting other types of organization to make an adaptation especially fitted to their needs.

It will be noted that the expense captions include as major groups, Warehouse and Receiving Expense and Delivery Expense, which is somewhat contrary to the treatment of this class of expense in other lines of endeavor, but it will hardly be questioned that this is the correct handling since accounting must follow the facts and such a heavy proportion of our marketing expense is found under these headings.

The following classification will require the least alteration when used by an organization which operates service stations and bulk stations in sufficient number to require a number of local administrative offices, which are given the name of District Offices (although Branch or Zone would be just as useful). It will require comparatively little change when used by organizations in which there is a selling force to handle lubricating oil apart from and in addition to the units which handle gasoline, kerosene, etc., and make delivery of the lubricating oil. It will also be susceptible for use by organizations maintaining a selling force in territories in which they do not maintain bulk stations or service stations.

It would be possible to develop a separate classification for each typical selling unit, i. e., for District Offices, for Bulk Stations, for Service Stations, etc., but it will be found that no additional significant facts are thereby developed and that the labor of compilation of statistics will be much more simple, particularly for large organizations if one complete list of marketing expense accounts is maintained for the organization and selection made therefrom of the appropriate sub-accounts for the various types of units (this is, of course, an additional step and not to be confused with the preliminary step of deciding which of the accounts listed below and described, are proper for the individual organization; which ones

Base Offered for Marketing Company Accounting System

WHAT is a good accounting system for a marketing company?

This question is one frequently asked by National Petroleum News jobber readers and although numerous articles have been published on accounting methods in the last few years, interest in the subject seemingly never wanes because marketing companies are striving to institute better business practices which include better bookkeeping.

The American Petroleum Institute has adopted a uniform general balance sheet, a skeleton of which was published on pages 36 and 27 of the March 10, 1926, issue of magazine. In immediately following issues definitions of the various items in it and the items in a uniform income and earnings statement.

Sub-committees of the institute's committee on uniform method of accounting will hold regional group meetings in 1927 to work on details of the various sections of the balance sheet. It is the intention of the institute to work out systems for the four major divisions of the oil industry—production, transportation, refining and marketing—and the affiliated natural gasoline industry.

At the recent Tulsa meeting of the institute Henry W. Ralph, assistant controller, Indian Refining Co., Lawrenceville, Ill., presented a scholarly paper on "Marketing Classification," part of which is published herewith. The remainder will be published next week. It is a tentative outline of a marketing classification but probably will be adopted in name by the institute at its next annual meeting.

Mr. Ralph offers the small marketing company the experience of a large company whose practices may be easily adapted by any intelligent bookkeeper to the uses of the smaller company. Some of the accounts may be eliminated from the system by the small company; others may be expanded or subdivided. In any case the outline presented by Mr. Ralph may be used as the basis of an approved system. It answers the question, "What is a good accounting system for a marketing company?"

should be combined and which ones further subdivided).

The general expense groups are listed below:

Selling Expense
Advertising Expense
Warehouse and Receiving Expense
Delivery Expense
Office and Administrative Expense
General Expense
Non-Operating Expense.

There is no attempt to define these general groups except to state that the individual expense accounts under each heading are separately named and defined so that the group becomes the combination of all the sub-accounts so defined.

Allocation of Expense

The arbitrary allocation of individual expenditures of certain kinds of expense to benefited sales units is almost entirely eliminated. The expenses of General Office and such expenses of District Offices and Bulk Stations as are the result of administrative or supervisory functions, are accumulated and the sum total of such expenses is distributed on whatever basis seems most equitable to the benefited subordinate units.

The General Office office and administrative expenses are to be distributed to each selling unit which receives credit for making sales on the basis of the capital employed by such units. The office and administrative expenses of District Offices are to be distributed to the benefited bulk stations on the basis of selling value of products sold. The bulk station expenses of delivery are to be distributed to the service stations which are supplied from its stock of the basis of quantity of products delivered. The bulk station office and administrative expense incurred because of these service stations will be charged to the benefited service stations on the basis of estimate of the value of such service.

The method of allocating Home Office burden, District Office burden and allocating bulk station expenses incurred for service stations, may, of course, be varied if some other method seems more equitable.

STANDARD CLASSIFICATION OF ACCOUNTS—MARKETING EXPENSES

Salaries—District Selling

THIS account shall include the salaries of all lubrication salesmen, field superintendents, managers of lubrication sales, special representatives, assistant managers of lubrication sales, special representatives, assistant managers and individuals attached to the District Offices whose activities are confined to sales effort.

This account is primarily to provide a distribution to the benefited station of salaries of individuals engaged in selling lubricating products. The salaries of such salesmen carried on station payrolls should be charged to this account, and if a portion of such salaries should be charged to other stations, the distribution to other stations should be made on the payroll.

Salaries—Local Selling

THIS account shall include at each service station or bulk station, those employees whose activities are local in character.

At bulk stations, the proportion of Local Agents' salaries which is chargeable to selling shall be charged to this account.

At service stations it will include attendants, and other employees engaged in selling activities, their salaries being charged to the service station benefited by their services.

Included in this account will be the salaries of all sales employees attached to local station, embracing service station superintendents, service station inspectors or supervisors, whose duties are local, the salaries of such individuals being charged to the bulk station and not the service stations which they supervise.

It will not include salesmen selling lubricants only, as their salaries will be charged to Salaries—District Selling.

Commission—Agents (Gasoline and Kerosene)

THIS account shall include the commission paid Commission Agents for marketing gasoline and kerosene, other commissions to agents to be charged to Commissions—Others.

Commissions—Salesmen

This account shall include all commissions paid salesmen.

Commissions—Others

This account shall include all commissions paid to Service Station employees, tank wagon drivers, or other employees at Bulk or Service Stations, which are not chargeable to Commissions—Agents, or Commissions—Salesmen.

Commission paid to Commission Agents on sales other than gasoline and kerosene will also be charged to this account.

Traveling Expenses—District Selling

This account shall include the traveling and incidental expenses of the employees described in Account "Salaries—District Selling."

Traveling Expenses—Local Selling

This account shall include the traveling and incidental expenses of the employees described in Account "Salaries—Local Selling," together with any allowance made for use of their own cars while engaged in the performance of their duties.

There should be no charges to this account of individual service stations, the incidental selling expenses at service stations being charged to Account "Miscellaneous Selling Expenses." At bulk stations the main items of expense in this account will be the traveling expenses of local employees, local service station superintendent, etc.

Incidental Marketing Expenses

This account shall include the expenses to be absorbed by stations for all expenditures for, or allowances made to, firms or individuals in connection with their physical marketing facilities. It will not include any trade discounts or quantity allowances.

Minor expenditures of this character, whether paid in the field or by General Office, will be charged currently to this account.

Expenditures of this character as are covered by authorization with a provision for amortization over a succeeding fixed period of time will be charged, when paid, to the proper General Office Account—"Deferred Incidental Marketing Expense." Amortization charges to absorb such expenditures will establish credits to this General Office Account, the corresponding debits to the benefited Station being made to this account—Incidental Marketing Expense.

Lubricating Dispensing Equipment—Depreciation

THIS account shall be charged with the monthly provision for depreciation of all lubricating dispensing equipment leased or for lease to customers.

Gasoline Dispensing Equipment—Depreciation and Amortization

This account shall be charged with the monthly provision for depreciation of fixed gasoline equipment, portable gasoline and portable kerosene dispensing equipment, leased or for lease to customers, and the amortization of installation charges of fixed gasoline dispensing equipment. (A more exact title would be "Gasoline and Kerosene Dispensing Equipment.")

Comment

As contrasted with the above handling of dispensing equipment, which is based on the theory that expenditures for leased dispensing equipment should be capitalized, it must be admitted that the practice of handling expenditures for leased dispensing equipment as current expense is quite prevalent, particularly by well established companies, who were among the first to adopt this scheme. It is extremely conservative, to say the least, and is not recommended for adoption by an organization which is just entered upon the marketing of petroleum through bulk and service stations.

Dispensing Equipment—Repairs and Maintenance

This account shall include all expenses incident to the repair of all leased dispensing equipment and any incidental moving expense incurred in connection with transfers of portable

"One Hundred Fifty"

NEW PROCESS Lubricating Oil

has the quality and the properties to give efficient lubrication during the most severe winter weather.

150 New Process

is proving a business builder for many representative jobbers.

20° below zero is "Some Cold" but DEEPWATER'S SUPER PALE 150 NEW PROCESS is tested to it.

ALSO
Filtered Pale Oils
Pale Oils
Red Oils
with Z old Test

Jobbers

Let us quote you on this peer of winter lubricants, and on all your other Lube oil requirements.

DEEPWATER OIL REFINERIES
HOUSTON, TEXAS

dispensing equipment. It will include painting.

When pump mechanics or repairmen incur traveling expenses, carting expenses, etc., in connection with the repair of dispensing equipment, the proportion of such expenses and salaries as are properly applicable to such repairs shall be charged to this account.

Dispensing Equipment—Removals Gasoline Installations

This account shall include all expenses incident to the removal of fixed gasoline equipment such as gasoline pumps, underground tanks, etc. It shall also include that part of the installation cost for such equipment which at the time of removal is in excess of the previously absorbed amortization applicable thereto.

When pump mechanics or repairmen incur traveling expenses, carting expenses, etc., in connection with removing equipment, the proportion of such expenses and salaries as are properly applicable to removal shall be charged to this account. (This account shall not include either repairs or cost of making new installations.)

Miscellaneous Selling Expenses

This account shall include all miscellaneous selling expenses chargeable to stations and District Offices which cannot be charged to other accounts classifying as "Selling Expense."

At service stations expenditures for laundry, soap, white wash, drinking water, and other items necessary to make station attractive will be charged to this account.

Advertising—Local Gasoline and Kerosene

THIS account shall include all expenditures for local advertising for gasoline and kerosene properly chargeable to individual stations. Items in this account will be either direct charges or a proportion of district charges distributed to individual stations on the basis of gallonage.

Advertising—Allocated Gasoline and Kerosene

This account shall include all expenditures for advertising of gasoline and kerosene which are of such a character that the burden can be more equitably distributed to districts or stations on a predetermined basis of quota or predetermined gallonage rate.

Advertising—Local Oil and Grease

This account shall include all expenditures for advertising of lubricating oils and greases properly chargeable to individual stations. Items charged to this account will be direct charges or a proportion of district charges distributed to individual stations on the basis of gallonage.

Advertising—Allocated Oil and Grease

This account shall include all expenditures for advertising of lubricating oils and greases which are of such a character that the burden can be more equitably distributed by establishing a charge to districts or stations on a predetermined basis of quota or a predetermined gallonage rate.

This account shall include the current expenditures for installation of signs of this character, incidental repairs to such signs, and the proportion based on gallonage, of monthly charge to selling units for amortization of such signs previously purchased and capitalized.

Advertising—Oil and Grease Signs

This account shall include the current expenditures for installation of signs of this character, incidental repairs to such signs, and the proportion, based on gallonage, of monthly charge to selling units for amortization of such signs previously purchased and capitalized.

Except for organizations of small size, it will ordinarily be necessary to develop a classification of advertising expenditures according to:

(A) Products or classification of products.

(B) Selling Units which are benefited by Advertising.

(C) Class of Advertising Expense, including analysis of Mediums—Magazines, Newspapers, Billboards, Circulars, etc.

It will further be considered desirable in most instances that the charge to be borne by the sales subdivision be spread over a period different from that in which the expenditure is made.

The method of accomplishing this is subject to some variations, but it will be found necessary under any circumstances that there be maintained a record in which all items of advertising will be entered.

The most obvious method of maintaining a record of this character would be to charge each item to an Advertising Sub-Account, and then distribute all such items to the benefited sales unit, crediting the appropriate advertising sub-account.

Advertising Analysis

AN equivalent routine, which will be found less burdensome, will be the maintenance of an advertising analysis record in which each item of advertising will be entered regardless of whether it is charged to a sales unit or is charged to a general office advertising account which is subsequently distributed to sales units on some predetermined basis of percentage, actual gallonage, theoretical or quota gallons. Such an advertising record can be arranged so that each item will be posted twice; the first posting developing information on the basis of which charges are made to benefited sales sub-division as allocated items, and in agreement with the accounting control figures for such allocated advertising; the summary of direct charges being agreed with the total of advertising items charged direct to sales sub-divisions; the second posting serving to build up an analysis of the mediums of advertising used.

The character of expense items which seem most likely to be of value for the Petroleum Industry are as follows:

Publications—Magazines, Trade Journals, Newspapers, Miscellaneous Publications; Billboards — Placards and Space; Other Space—Placards and Space; Miscellaneous Cuts and Electrotypes, Lubricating Oil and Grease Guides, Pamphlets and Circulars, Exhibits, Letterheads for Dealers, House Organ, Products Given as Advertising, Movie Films and Slides, Advertising Department Payroll, Advertising Department, Traveling Expenses, Advertising—Freight, Express and Postage Expense; and Signs for Customers.

Spread Over Period

IT is obvious that certain classes of expenditures because of the small amount involved, or because of regular recurrence, can be charged currently to benefited sales sub-divisions without distortion of their Profit and Loss statement. Certain other items, however, because of the large amount involved should be spread over a period of months. Items of this character should be charged to a General Ledger Advertising Account, and charges to the benefited sales sub-divisions on the basis of either a predetermined quota or a predetermined rate per gallon will establish credits to a General Ledger Account entitled "Provision or Reserve for ..... Advertising Expense." To do this with a reasonable degree of accuracy will require preparation of an advertising program at the beginning of each fiscal year. The expense must necessarily be spread on the basis of monthly quotas for sales units. As the year progresses, it will be necessary to make a comparison of the actual advertising expenses on the program, and of sales results with estimated sales. Adjustments must be made during subsequent months so that distribution of advertising will be equitable.

It is recommended that expenditures for purchases of signs be charged during the current year to the different stations, but if, at any time, an organization makes a very heavy out-lay for advertising of this character, which will have a life of several years, it might be better accounting to defer such expense over a period more consistent with the life of the signs.

Salaries—Warehousemen

This account shall include the salaries of plant superintendents, plant foremen, warehousemen, coopers, can fillers, firemen, watchmen, extra labor, and overtime of such employees while engaged in loading or unloading of cars, receiving, storing, or preparing for shipment any miscellaneous materials and supplies used in the ordinary conduct of business. This will include handling and storing (but not installing or removing) of leased equipment, advertising material, automobile parts, office supplies, etc. Salaries of employees whose services are used in connection with major items of new construction should not be included in this account, as such salaries should be capitalized.

(To be concluded in next issue)

Describes Method of Finding Marketing Costs of Individual Products

By Stuart A. Giraud
Humble Oil & Refining Co.
Delivered Before A. P. I., Tulsa, Dec. 8

CONSIDERING the many methods of distribution of Petroleum Products and conditions peculiar to each product it would appear logical that any arrangement of cost accounts should give consideration to the particular products being handled and an attempt be made to find the cost of handling each product separately. For instance, those who market nothing but gasoline can very simply determine their cost by dividing their total expenses by the volume of gasoline marketed. Others marketing two or more products have a more intricate problem to determine what part of their marketing expense shall be charged to each of the products they market. A large organization which markets a full line of products has a still more intricate problem.

Take the operations of any large company which owns and operates complete facilities to transport products from their refinery by rail or water to bulk stations distantly removed; from these bulk stations distribute to sub-stations located in cities and towns, from such sub-stations transport by tank wagon, trucks, or other means to service stations and from such stations (or stores) sell the products directly to consumers. Such a company must of necessity take account of the investment in facilities that are required for the proper handling of each of their products, and the cost of operating such facilities in order that they may determine their gallonage cost, measured by their volume and thus compete with other marketers who are operating in a similar way. Until these costs are found and until competition is guided largely by the economic facts as to transportation and distributing costs, the oil business cannot be said to be soundly organized, and unprofitable operations and failures will result from ignorance of the true costs involved.

Fixed Charges

I HAVE referred to fixed charges on facilities—I think this is of prime importance in considering costs. The amount of money invested in facilities for handling any product or line of products creates obligations in the form of insurance, taxes and depreciation on such investment, and a business would not be profitable unless the profits arising from the use of such facilities return a fair rate of interest on money invested in such facilities. Therefore, profits must not be figured altogether on the basis of cents per gallon on products sold but the return on the amount of money invested should also be considered. This principle is sound whether it be a big or little organization, whether such organization completes the cycle from refinery to consumer, or markets products in a wholesale or retail way.

Transportation charges are a prime factor in cost common to all products. There is, of course, no great difficulty presented in directly allocating this item to products; if products are being transported through a terminal or bulk station and rehandled, logically the next item to be considered is fixed charges on investment in facilities, and cost of operating such terminal. Thirdly, comes a cost of making the distribution either directly to the consumer or to a sub-station and so on; then must be considered the over-all cost of selling the goods, in some cases, both buying and selling and the administration cost of the business. These latter items may be distributed more or less arbitrarily as suits the particular organization involved. In the handling and rehandling of products certain quantity losses may occur. These losses may be either figured as a cost of operation or may be absorbed in the base cost of the product sold. I rather favor the latter plan because that is the true cost of the product to which should be added the other factors of transportation, handling, and sales force.

Jobber Costs

IT will not be possible for me to deal in detail with every activity which may be involved in the marketing of petroleum products, but to better illustrate the principles upon which a cost system can be laid out, I am going to take the case of any local distributing organization and undertake to show various items of expense with which they have to contend and how such expense may be distributed by products. Such a business would consist of a convenient location adjacent to railroad tracks to receive bulk shipments on which there would be improvements consisting of, adequate tankage for various products to be handled in bulk, warehouse building for storing package goods, garages for protecting tank wagons and automobile equipment, storage space for iron barrels, equipment for filling same, office building, etc. Other equipment would consist of tank wagons for the delivery of gasoline and kerosene oil in bulk, with provisions for carrying lubricating oil in cans; stake trucks for carrying barrels and packages, salesmen's automobiles, and the necessary allotment of iron barrels and other containers for the proper distribution of products handled.

The expenses of operating such a station or group of stations, and the manner of allocating these expenses is proposed as follows:

PROPOSED EXPENSE DISTRIBUTION AGAINST PRODUCTS HANDLED

Salaries

SALARIES of all station employees except agent, truck-drivers, and watchman to be distributed on daily time card basis. Agent's salary to be distributed on percentage basis after figuring such percentage on entire distributed payroll.

Truck-drivers' salaries to be distributed in accordance with products delivered, tank wagons on gallonage and stake trucks by weight.

Watchman's salary to be distributed the same as depreciation.

Traveling salesmen's salaries and expenses to be distributed on basis agreed upon by manager, according to assignment of salesmen.

Commissions

All commissions and drayage to be distributed direct to products on basis of actual sales.

Traveling Expenses

All traveling expense to be distributed on the same basis as salaries.

Extra Team Hire and Drayage.
Purchase of Tools and Utensils.
Repair to Tools and Miscellaneous Equipment.
Warehouse Expense and Supplies.
Direct to products where possible but prorated where necessary on basis agreed upon by manager.

Repairs to Building and Station Property, Repairs to Tanks and Lines, Station Rentals, Insurance, Taxes and Licenses at Station.
To be distributed on same basis as depreciation (See below).

Auto and Auto Truck Expense

Tank and stake truck expense to be distributed on a basis of products delivered. (Gallonage or weights of products.)

Automobiles to be distributed on the same basis as salaries and traveling expense of each individual using cars.

Postage, Stationery, Office Expense and Supplies

Proportioned on actual expense distributed as direct expense, same as agent's salary.

Water, Power, Ice, Light and Fuel,
Telegraph and Telephone,
Miscellaneous Expense,

Collection and Legal Expense.
Overhead (See below.)

Handling Charges (Credit for Transfers)

At all stations an allowance of ½c to 1c per gallon is made for handling shipments for the account of other stations, distribution of which will be made direct to products.

Advertising

Direct as near as possible. Percentage to be decided by manager.

Freight on Steel Drums (Returned)

Distribution to be made on percentage basis using previous months shipments by products as a basis.

Depreciation and Repairs

STATION depreciation to be distributed as follows: Warehouse—Lubricating oils or other package goods. Storage tanks—on basis of products stored. Lines, pumps, and pump houses, loading and unloading racks—to be distributed on same basis as storage tanks. Garages at commission stations—to be distributed to the products on basis of volume handled. Garages at Salaried Stations—to be distributed on same basis as truck depreciation. Fences and driveways—to be distributed to all products on same basis as balance of investment.

Property and Equipment Retirements

Direct to products on same basis as depreciation was charged on each unit including motor equipment.

Proportion of Overhead Expense

Maximum part possible of all expenses will be distributed directly to products and amounts remaining will be classified as overhead and distributed in the same percentage as the total direct charges to all products. Head office pro rate expenses being distributed in same manner.

Repairs to Containers (Not Storage Tanks)

To be distributed the same as freight on steel drums.

NOTE:

In an individual business, the manager of the business would replace the agent, but if the station were one of many owned, and operated by an organization, there would be the expense of the head office consisting of salaries, office, traveling expense, etc., and these expenses would be prorated between the different stations on the basis of the percentage of the total expense each station would bear to the total expense of all stations and in turn this item would be prorated to products the same as the agent's salary and as overhead is prorated, namely, upon a percentage that the direct expense against each product would bear to the direct expense on all products.

Such a distribution as the above was worked out to cover the operation of a number of distributing stations, including head office, and it is interesting to note the following costs by products:

SALARY STATIONS

	Cost per Gallon
Gasoline	2.49c
Kerosene	6.4c
Motor Oils	22.74c
Lubricating Oil (Industrial)	16.61c
Greases	39.76c

COMMISSION STATIONS

	Cost per Gallon
Gasoline	3.67c
Kerosene	4.58c
Motor Oils	15.09c
Lubricating Oils (Industrial)	13.01c
Greases	23.06c

The above figures on Commission Stations include an assumed fixed percentage commission to agents based on value of products sold, and the commission would replace the item of salaries and all operating expenses excepting extra allowance for drayage. Depreciation, taxes, insurance, and repairs were charged the same as Salaried Stations. In other words, the commission agent merely took the facilities and operated the same, paying all expenses, providing his own trucks, and making deliveries, in consideration of which a commission was paid. In addition to the agent's commission the company had to keep the station in repair, furnishing all equipment excepting trucks, pay some extra drayage on long deliveries, stand the burden of depreciation on the property and assume all strictly overhead expenses. The comparison between salaried and commission stations is merely made to show that an application of the plan can be made to both classes of stations and the cost of marketing the different products determined. The basis of commission could, of course, be charged so that results would be more in line with Salaried Stations.

It has been common practice in marketing businesses such as the above to make no distinction between products and figure marketing costs on a total gallonage basis. For comparison with the results on the above separate costs by products, these same stations have been figured on total gallonage and show as follows:

Salaried stations total gal. all oil 3.72c
Com'd. stations total gal. all oil 4.50c

The conclusion to be drawn from the above figures is that the total gallonage cost figure does not give results from which an executive can outline policies or determine what should be done in meeting competition on different oils from different competitors. I previously referred to the case of gasoline being a prime product and to instances where gasoline may be marketed separately from lubricating oils. The above analysis shows that the average cost on gasoline at both classes of stations was below the average cost for total gallons. On the other hand, motor oils and lubricating oils cost from three to six times as much and greases five to nine times as much per gallon as the cost of marketing gasoline. The figures merely illustrate that with a small investment in facilities, handling a large volume, gasoline can be handled on a much smaller margin than other products. On the other hand, the cost on motor oils is high because of limited quantities and the added expense of equipment to market the same.

These facts would certainly give an executive a better opportunity to lay out his plan of campaign in building up his marketing business and decide what would constitute reasonable profits, all things considered, in handling each particular grade of oil. It will be noted the cost of kerosene is somewhat higher than gasoline. Although kerosene is usually handled in similar facilities to gasoline, the answer is plain that there is a lesser volume of kerosene and the movement through facilities is not as rapid. It may be possible to reduce this cost by increasing gallonage but there is a limit to the amount of kerosene that may be sold, therefore, an executive would naturally have to keep investment in facilities at a minimum and expense at a minimum in order to economically handle and distribute this product. Likewise, greases are sold in small volume, therefore, costs are high.

Such a plan as I have proposed can also be applied to terminals or bulk storage stations, or even to service stations, although in the latter case there is usually a fixed volume of lubricating oil moving with gasoline and if an average satisfactory percentage is maintained there would not seem to be any reason for checking these costs excepting in determining at what price it would be logical to sell gasoline above the tank wagon delivered cost to the station, to return a reasonable profit on the investment, and the same as to lubricating oil.

A large part of the cost of operating service stations are fixed charges on the land and improvements and it would be rather hard to make a clean cut allocation of such charges between products usually being handled through service stations, since the supplying of automobiles constitutes practically the whole business and the products are delivered proportionately. However, I have obtained some figures made up to show the cost of operating filling stations and when an effort was made to separate the cost by products the resulting figures show that motor oils cost per gallon an average of about six times the cost of handling gasoline, and greases on a gallon basis, about nine times.

Carolina Jobbers Organize

GREENSBORO, N. C., Dec. 13.—A state association of Independent oil jobbers in North Carolina was organized at a meeting Dec. 7 at the O. Henry Hotel, Greensboro. Officers elected are:

J. P. Flanigan, Statesville Oil Co., Statesville, N. C., president; W. N. Holt, Holt Oil Co., Smithfield, N. C., vice president; and E. M. Brown, Carolina Oil Co., Lincolnton, secretary-treasurer.

Directors elected include: O. A. Costner, Carolina Oil Co., Lincolnton; J. R. Harwood, Harwood Oil Co., Apex, N. C.; P. McLaird, Central Oil Co., Greensboro, and L. H. Martin, L. H. Martin, Inc., Greensboro.

Corrosion, An Economical Problem In the Refinery

By H. F. Perkins
Gulf Refining Co.

Read Before Group Session on Corrosion, A. P. I. Meeting, Tulsa, Dec. 9

CORROSION in an oil refinery, while in general similar to that in most industries, has a few special classes of its own. The distinct cases are those due to sulfur and its compounds found in all crude petroleums, and the salt water with its portion of magnesium chloride, which it seems impossible to entirely eliminate from the crude.

The action of these two agents is not directly confined to distillation apparatus; since they find their way into the atmosphere and into the water used for cooling, they are responsible for our all around increase in corrosion. While the hydrochloric acid formed from the magnesium chloride in the oil has limited scope for action, there is scarcely any structure free from the associated action of sulfur in some form.

Much work has been done in the reduction of sulfur found in some crudes but this has resulted from the oil having so much sulfur that it is unmarketable. From a refinery standpoint all the sulfur should be removed and this would seem to be a very important research subject in view of the general loss by corrosion, the cost of chemical treatment with its investment, and the slowing down of refining operations.

Corrosion

THE actions and interactions which bring about the disintegration of metals as now understood, and the factors controlling these actions are extensively set forth in recent literature on the subject. Corrosion has been expressed as the inclination of a metal to return to its ore, forming soft soluble compounds.

The controlling influences are velocity of liquid, temperature, hydrogen ion concentration, metal potential, concentration of metal salts, formation of coatings, electrical conductivity, overvoltage of hydrogen, and oxygen. In studying corrosion problems these factors will be found and it may be found possible to control one or more thereby reducing corrosive effect without great effort or expense.

The part that such agents as sulfur compounds and hydrochloric acid play is the increase of the hydrogen ion concentration, effect on overvoltage of hydrogen and making metal potential effective. In the atmosphere the factor of oxygen becomes more important.

Refining

THE refining of crude petroleum consists of raising its temperature and separating the fractions adaptable for different uses, as they distill off. At the start, dissolved hydrogen sulfide is the first corrosive to come off when present in the oil; as the temperature rises magnesium chloride is decomposed, and the gas HCl comes over. Almost at this same point some light sulfur compounds will be broken up with the further evolution of hydrogen sulfide.

The magnesium chloride is usually completely disposed of when 40 per cent of the oil is distilled over, but the sulfur compounds are so numerous and varied in their composition that they are to be counted on all through the distillation process, and will be found even in the end product, coke.

In accordance with the use to which different oil fractions are to be put they have to be further refined by chemical treatment, redistillation and filtering. Litharge and other chemicals are used to reduce the sulfur content of some oil fractions. This and sulfuric acid treatment often entail a considerable loss of oil, are expensive, and consume much time, storage space and equipment.

Oils that are put through pressure stills give off hydrogen sulfide, and oils that are burned give off sulfur dioxide. In plants where the uncondensed vapors and gases are compressed in a gasoline recovery plant, these gases contain considerable sulfur and some HCl. The oils stored in tanks, either as crude oil or fractions awaiting further treatment, give off considerable sulfur gas, the amount depending of course on the sulfur content of oil.

NEVER, so far as we know, has anyone given so complete a picture of the corrosion situation in oil refineries as does Mr. Perkins in this paper. Taking up refinery equipment by departments and by individual units, he shows where corrosion is most severe and what causes it. He also gives valuable information as to the metals which are practicable to use and which give the highest resistance to corrosion.

In discussion following the reading of his paper, Mr. Perkins intimated that much is being done in the Gulf refineries toward reducing corrosion by special design of equipment and by temperature control, although he did not give any particulars on this.—Editor.

In a treatise of this kind, expounding on practical experience, it would seem suitable to typify corrosion as acid, high temperature, underwater, and atmospheric. Underground corrosion has similar characteristics to that under water, in the atmosphere corrosion has similar characteristics to that in acid. Water is a necessary agent for most refinery corrosion to take place at normal temperatures.

Crude Distillation

EXPERIENCE starts with the short life of cast iron condenser coils. The most serious trouble has been found in the gas-oil condenser when steam is used for distillation. The kerosene and gasoline coils corrode slower due in part to less water being present.

In the gas-oil coil we have in many cases both sulfur gas and HCl, with steam condensing. Insoluble iron-sulfur compounds are attacked by HCl and become soluble, greatly increasing corrosion. Two troubles from this source cause expensive interruptions to service, one is the choking of pipe by corrosion products, the other is softening of the pipe which results in cracks or causes pieces to drop out. Cast iron corrodes in such a way that the iron goes into solution leaving silica and carbon with some oxide or sulfide as a weak binder. The appearance of pipe is not changed until it is so softened that the liquid flow washes away the corroded material.

Tests made on the water coming from a coil, have indicated a loss of iron amounting to over 0.7 pound per hour; by neutralization the iron loss was reduced to 0.03 pound per hour.

Further distillation of the crude oil without steam, results in some cracking with further evolution of sulfur gas, and corrosion of parts maintained at temperatures much above 500° F. This corrosion while apparent is not serious, probably because of the small amount of sulfur gas and comparatively low temperatures.

Treated Oils

MANY of the various fractions separated during distillation are treated with sulfuric acid or other chemicals and are redistilled with the aid of steam. Those fractions that still contain some sulfuric acid give off sulfur dioxide and other gases which when absorbed in the condensing steam are extremely active. The iron loss by water test in a case where oil carried .25 lb. of sulfuric acid per barrel, was indicated as over 100

lbs. per run even though a large part of the gas was drawn off by steam syphons. The most severe corrosion is experienced on the steel vapor line near the still, where the steam starts to condense. Laboratory tests, using most corrosive water from this still, showed metal resistance in following order: iron 1, ascoloy .09, aluminum 1.17, copper 1.8, admiralty 3.3, monel 3.9.

Cases of this kind may be taken care of by scrubbing the vapors thoroughly with water in a cast iron chamber, passing the acid water off through a large acid proof trap, flowing the oil and its vapors through regular condenser box, and skimming entrained oil from acid water in efficient drainage trap.

In the case of batch stills which require steaming out at end of run, there are acid-forming gases present and much corrosion results.

Sweater Pans

THE sweating of wax is usually done in iron pans subject to the action of water, steam and oil. A small leak will often cause trouble from loss or discoloration of wax. It is usually a difficult and expensive job to make repairs, and corrosion is quite rapid due to the almost continuous presence of moisture and the high temperature. The oil sweated from wax often contains small amounts of sulfuric acid and organic acids. Tests with monel metal, nickel, aluminum and ascoloy show very little attack under sweater pan conditions. Using one of these metals in thin sheet form as a lining, and spraying on the outside would seem practical.

Pressure Stills

THE parts of an oil tracking unit operating at high temperature and high pressure are subject to corrosion and to mechanical strain unusual in other refining apparatus.

Sulfur in the oil charged to pressure stills gives off hydrogen sulfide. This gas in its dry state will attack iron at temperatures above 500°F., the action increasing rapidly with increased temperature. The sulfur content of charging oil may vary from 0.1 per cent to 0.4 per cent and from 0.05 per cent to 0.12 per cent in the distillate; there seems to be no fixed relation between percentage of sulfur in charge and distillate. While some action is observed on still tubes, it is most noticeable on plates suspended in the vapors, and here the effect of temperature is plainly seen as the parts at low temperature are little affected while those at higher temperatures are completely corroded away.

Tubes and Plugs

STILL tubes sometimes are worn thin or have corroded holes in the top while the bottoms of tubes remain the original thickness. Plugs will wear more in one part of still than in another, and while usually the wear is uniform occasionally one will wear more on one side. Shelby seamless steel tubes, series 20-23, are giving good service. Calorized tubes were not found worth their extra cost. Monel metal plugs, while they corrode some, have other advantages, and by proper design give two or three years service. Aluminum bronze plugs become brittle in the threads causing blowouts. Plugs of some other types of metal jamb in, or are soft and cannot be easily removed.

Pumps

PUMP bodies are made of steel. Cast iron has been found best for pistons, piston rings, hot packing, liners and valves. The piston rod is made of carburized .30 to .40 carbon, high grade steel oil drawn to the working temperature, giving scleroscope hardness of 75. The ordinary case hardened steel is good until the hard surface corrodes away; carburizing deepens the hard surface resulting in longer life. Corrosion seems to be a matter of temperature, and the innermost portion of rod (in the oil) corrodes .034 inch to .001 inch in the stuffing box for case hardened steel.

Many alloys have been tried for this work but none has proven of service. Steel piston rings broke quickly, monel rods corroded quickly. There is some corrosion of the pump interior at velocity points, and the addition of nickel and chromium might be of advantage here. In one design of pump copper gaskets corroded quickly, other pumps were designed with gasket protection and copper is satisfactory. Pump valves are solid cast iron balls weighing about 28 lbs. These wear down evenly and give better satisfaction than anything else tried. Valve seats of steel are found serviceable.

Piping

ALL piping subject to heat and pressure is of the same material as still tubes—cold drawn, seamless steel. There have been a few cases of brittleness, and these were on lines subject to vapor only. Wrought iron under these conditions becomes as brittle as glass. Wrought iron extra strong is satisfactory beyond the pressure zone.

Valves

VALVES made of high grade cast steel containing about 2 per cent nickel and .7 per cent chromium, are satisfactory for high temperature high pressure work. Seats and stems are made of rolled chrome-nickel steel. The valve on top of separator, used for steaming out, shows the most corrosion.

Separator

IN the separator as elsewhere in pressure still system, the parts at highest temperatures are corroded most, and while aluminum alloys and chromium iron have shown high resistance to H_2S at high temperature in the laboratory, heavy iron is still used. Metal life is indicated in following ratio from laboratory tests: iron 1, ascoloy 3, enduro, "A" 4, aluminum sheet 11, Enduro "T" 59, aluminum alloys "3SO," "3SH," "2SH," 180. The vertical wall of a separator shows little corrosion but usually has a scale which gives on analysis, iron 58.18 per cent, sulfur 7.04 per cent and carbon 16.23 per cent, the iron representing .005 inch depth loss per year. Parts that gather a fine carbon or coke deposit are protected against excessive corrosion.

Calite, a nickel-chromium-iron alloy, is used in stills for supports, and while it distorts it does not burn and can be straightened by using the proper method.

Duraloy plates suspended as furnace baffles stand the temperature without oxidizing, but will warp badly unless properly supported.

In general, corrosion of pressure still equipment is most severe where gases and vapor may be localized or are free from the oil. Chrome-nickel alloys are most serviceable in general, cast iron is satisfactory where great strength is not required. Constant expert supervision is responsible for anticipating failures in this equipment.

Tube Stills

TUBE stills show somewhat the same effect as pressure stills though not so severe, and as the pressure and temperature is lower and the charge somewhat different, the active corrosive agents are probably not the same. Brass plugs on these stills do not give best service.

Where steam is used very severe corrosion occurs on the steel vapor line at the point where steam condenses. A monel metal sheet lining in vapor line where corrosion is most active has given promising results. This corrosion is probably due to H_2S and HCl in water, when distilling crude oil.

Gasoline Recovery Plant

GAS containing vapor from many of the distillation processes is compressed, or passed through oil to recover any light gasoline present. The sulfur present in this gas from different departments averages as follows: Crude stills, 1 per cent, coke stills 2.5 per cent, topping 3 per cent, cracking 0.2 per cent, rerunning 1.0 per cent. A small amount of water vapor in the gas is condensed by compression and cooling, and the cooling coils of wrought iron are badly corroded, the products causing complete stoppage in a short time so that pipes, valves and fittings have to be blown out with steam, frequently. The products of corrosion are iron oxide, iron sulfide, iron sulfate and free sulfur. Water scrubbing in an acid-proof tower removes a large portion of sulfur.

Where the absorption system is used the oil soon becomes saturated with sulfur which precipitates wherever the oil is expended through a valve, probably due to reduction in temperature. A reduction to 32° F. has been found to cause precipitation of 6 per cent of the sulfur in this oil as free sulfur. Sulfur may be removed from the gas by a special washing process, but at present the method is too expensive for this application.

In a test of water saturated with H_2S and the life of iron taken as 1, monel metal was 25, aluminum was 40, and admiralty metal was 43.

The gas holder, sealed with water, is attacked near the water line, more severely inside than out. The outside

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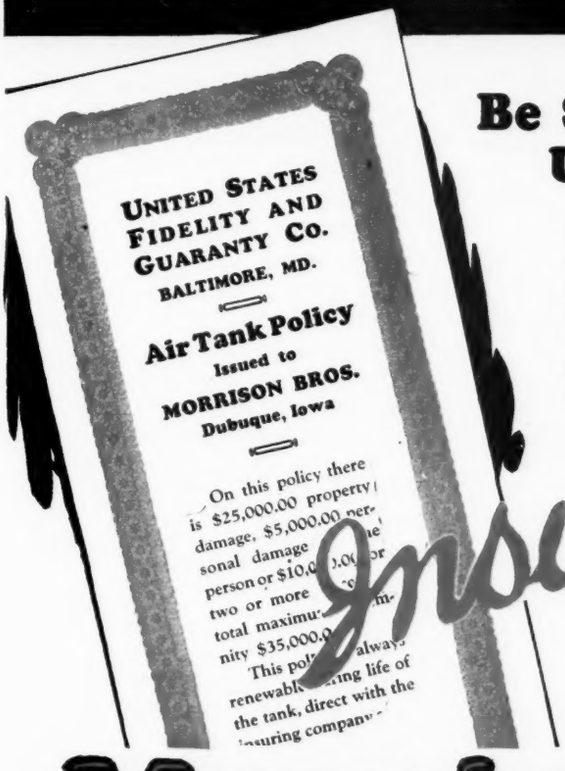

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DUBUQUE, IOWA

corrosion is due to oxygen and gases in the air but inside, mostly to sulfur gases. An oil layer on the water is being tried to keep the gases out of the water.

Gasoline Condensers

WHERE gasoline is distilled off with steam, brass tube condensers are sometimes used. Sulfur being absent, there is no corrosion but with sulfur present admiralty metal tubes are readily attacked. Admiralty metal coated with tin is being tried in this connection. The cast iron heads of these condensers are severely eroded by the high velocity action of vapor emerging from the tubes, the vapor direction is reversed at each pass by these heads and the iron has been eroded nearly an inch deep in about two years. Removable linings of steel are now being used. There is considerable corrosion of these condensers by water, which will be taken up later. No corrosion has been experienced with cast iron coils in this connection.

Tanks

SULFUR gases combining with moisture condensed from the air cause severe corrosion on inside of storage tanks. Scale from roof of tank which exploded, gave following analysis:

Iron sulfate 1.84 per cent; total sulfur 15.57 per cent.

Iron sulfide 13.58 per cent; total iron 55.04 per cent.

Free sulfur 7.26 per cent; loss by ignition 20.70 per cent.

Many mysterious tank fires in the past may have been caused by the formation of these compounds, for while they are formed under moist conditions, a sudden drop in air temperature with accompanying low humidity will dry off the scale, and rapid oxidation will result in high temperatures in places. Cast iron corroded under water will show this same effect when exposed to the air.

Paint lasts but a short time on the inside of tank roofs, but possibly spraying, or lining with a resistant metal such as tin or aluminum would eliminate this trouble. The best plan would be to eliminate gas space under roof. Agitators are subject to this same trouble but are more accessible and can be kept painted.

Where floating roofs are used the inside of tank above roof corrodes badly, due undoubtedly to the concentration of gases on this surface.

The breather lines for tanks are badly corroded, and the flame arrester screens of monel metal have to be renewed very often, as both air and corrosive gases are continually moving through these pipes and screens.

Monel metal ropes controlling swing-pipes in tanks, often are seriously corroded when they come in contact with water associated with sulfur compounds or oils containing sulfuric acid. Monel metal lasts twice as long as steel but at best the life is short.

Tank bottoms have given much corrosion trouble from the water settling out of oil; this is overcome by a three-inch layer of well mixed 1:2:4 cement, which is also applied to water box bottoms. The use of iron traps with acid proof lining has greatly reduced this source of corrosion, especially on running tanks, as the water is drained off at end of condenser coil before it can reach the tank.

The above outlines the main sulfur and acid corrosion peculiar to petroleum refining. While percentages of corrosive elements are small, their quantities are sufficient for extensive destruction. In a large refinery the production of HCl gas from salt in the crude, may average 200 lbs. a day, and the sulfur may amount to 90 tons a day, while on the other hand, almost as much pure sulfur will be required for manufacture of sulfuric acid used in treating. Sulfur is active further in connection with atmospheric corrosion on account of large quantities of H_2S and SO_2 given off by tanks, stills and furnaces; the sulfur going into combustion approximates nine tons a day. Corrosion by sulfuric acid and other standard chemicals used in refining is not treated here as their effects and methods of handling are generally known.

High Temperature Corrosion

THE corrosion of pressure still and other equipment when above 500° F., by H_2S, comes under this head but has been treated above. Other high temperature corrosion is found in furnaces. Pressure still tubes or others, and still bottoms on which an insulating deposit of coke or salt forms, may reach furnace temperature; as this may be anywhere from 1300° F. to 1400° F., iron will rapidly oxidize, because appreciable oxidation takes place at as low a temperature as 900° F. With oil flowing rapidly over and in contact with metal, the metal temperature will be nearer that of the oil than of the furnace, but a small deposit of salt or coke will prevent the metal from being cooled by the oil.

In the concentration of heat in some furnaces, the temperature of metal may be high enough to cause some cracking of oil at a certain point with the gradual building up of a local deposit which, after several days or perhaps weeks, results in burned iron. This trouble may be initiated by a local rate of vaporization great enough to separate the oil from contact with the metal, which would allow the metal temperature to increase causing incipient cracking of oil that occasionally might reach the spot. This effect may also be caused by improper application of steam in the still.

Ascoloy, or iron containing over 14 per cent chromium is said to resist oxidation at the temperatures of ordinary still furnaces and would seem promising material for pressure still tubes and coke still bottoms.

Brick-work in furnaces gives little trouble unless the fuel contains alkali or acid sludge. Ordinarily the sulfur in fuel oil seems to give little difficulty, but alkali will cause fire bricks at high temperature to melt in a very short time, and some trouble has been experienced in the past. Chromium containing fire cements seem to resist the action of caustic at high temperatures, but have not yet been tested thoroughly.

This problem is largely one of local significance, is characteristic of water supply sources and contamination. Much refinery waste finds its way into some of the cooling water.

The fire lines are giving the most serious trouble, but mainly from outside corrosion and cracks. The soil is mostly clay and is practically continually wet, but elementary tests have shown the water in ground to be neutral. The corrosion of these lines takes place at points which correspond with the imperfections or loss of protective coating on new pipe, and where coating is thick and intact no outside corrosion is found. Inside corrosion is to an even depth, generally one quarter thickness of pipe, which shows that the protective coating is not impervious to water.

Many of these failures are accompanied by extensive cracks in the cast iron and the cause of this has not been determined, it may be due to structural strains or to disrupting corrosion products. Out of 23 failures, 10 had corroded holes of about eight square inches, in three cases pieces were broken out without much apparent corrosion, three were cracked with but slight corrosion and seven were both badly corroded and cracked. These pipes were in the ground from 11 to 13 years, and were scattered over plant. Cooling water lines under the same conditions, except lower water pressure, have given no trouble and show very little inside corrosion, which suggests that pressure may have something to do with the penetration of water. Pipe coatings vary greatly in texture, thickness and evenness. These coatings are soluble in strong acid or alkali. A compound of wax tailings is being applied to new pipe in an endeavor to cover the bare and imperfect spots. It was found that the pH value of water in fire mains could be increased to 9.5 by adding caustic soda, at an expenditure of about $6.00 a day. With this and better outside protection the life of pipe should be increased many fold.

Analysis of Corroded Material

SILICA 23.5%; Ferric Oxide 60.2%; Carbon 8.9%.

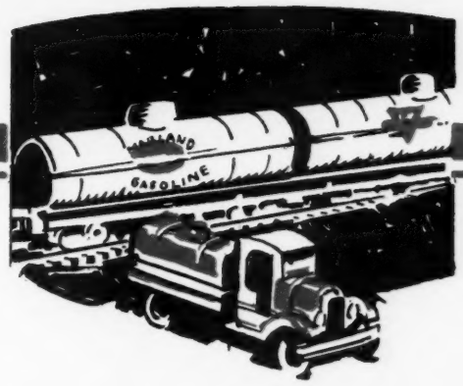
From determination of iron carried in water the loss was estimated as 150 lbs. each 24 hours.

Water

CHLORIDES and hydrogen ion concentration of various waters used is given below:

Source	Use	Chlorides Grams per liter	P.H.
No. 13 P. H.	Cooling and Fire	6.5	3.6
Alligator Bayou	Water Supply tributary	1.7	Acid
No. 72 P.H.	Cooling	.9	6.7
No. 3 Reservoir	Boilers	.3	6.7
Treated	Boilers	14	plus
Neches River	Boilers	.1	7.0
Drilled Wells	Low temp. cooling (very corrosive)	9.9	8.1
Tanker ballast	From Savannah, Ga.	29.6	8.1
Tanker ballast	From Delaware River	11.2	6.9
Fort Worth drilled wells	(corrosion very slight)	0.15	8.3

Water temperature will average 91° F.



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over the summer months and 60° F. during the cooler months.

Pump impellers have a comparatively short life, and it is interesting to note results in different locations; at Baytown on Galveston Bay it is reported that:

Acid bronze lasted two months.
Cadmium coating lasted two months.
Everdure gives prospect of one year.
Everbright has a little better prospect.

On the Neches River above Port Arthur:

Cast iron lasted five years.
Acid bronze lasted six years.

At Port Arthur acid bronze impellers last five years.

In cases where bronze parts inside of pumps were changed to cast iron, this iron corroded rapidly due to electrolytic action.

Water sprayed coolers of wrought iron corroded rapidly due to electrolytic plant, oil cooling and refrigeration corrode very rapidly, due no doubt to atmospheric exposure. NO-OX-ID is used for protecting threads and return bends in many of these cases.

Tank roofs of steel that are water sprayed during warm weather, are kept painted and last several years. Roofs containing water wells are corroded most near hatches and other openings where gases from oil leak out.

Condensers

WATER box condenser coils of cast iron have a life of many years as far as water is concerned, and usually fail from inside corrosion first. Where bolted pipe is used the steel bolt head disintegrates in a few month causing serious leaks; monel metal bolts will outlast life of pipe. On testing bolts against cast iron and steel plate for electrolyte polarity, there was always considerable difference of potential but the polarity was not always consistent.

As in other cases where volumetric water cooling is used, corrosion is much more rapid at the top of system where temperatures are higher and gases in solution are concentrated.

Condensers using admiralty metal tubes are often used in connection with steam stills. Where water velocity is low allowing concentration of dissolved gases and deposition of suspended matter, and condensers are overworked, the tubes in hot section will corrode through (in isolated holes) from water side in a year, and the half-inch shells leak at top in about the same period. Tubes of high nickel content are being tried; also a test is being made on the effect of electrical contact by making good contact with tube sheet at both ends, insulating one end, and insulating both ends of tubes. Mud deposits from hot sections have shown five per cent copper, on analysis.

Steam condensers at power plant where water velocity is higher, show a unifrom loss of 25 per cent in tube thickness in two years with about three per cent failure in that time; 95 per cent of failure was due to split tubes which is a manufacturing defect.

Steam condensers on ships, where temperatures are higher due to poorer vacuum, show much greater loss by pitting. The cast iron shell of one of these condensers recently examined, had been in service 25 years and was still very serviceable.

Tank Ships

THERE is much opinion regarding the life of modern metals compared with those produced some 25 years ago. Some iron vessels in service 25 years are giving less trouble from corrosion than those constructed in the last few years. It is said that condenser tubes of admiralty metal formerly lasted 10 years, while their life today in the same condensers under the same conditions is only about two years.

Much trouble is experienced in tankers from leaky rivets, and as this allows oil to leak out it is serious. The rivet head is probably anodic to steel plate plate and endeavor is being made to locate a material that will be slightly negative to steel and will be free from auto corrosion.

Corrosion from light oils in tankers is a subject of complaint. This corrosion may be due to the rapid evaporation of oil allowing moisture to condense, to its scale removing action or to the sulfur compounds in the oil. A test was made recently of metals sprayed on a tanker bulkhead, aluminum, copper, brass and zinc were applied. On the first trip the copper was half gone, the brass was slightly attacked, but the aluminum showed no attack. No water was carried. This conforms with tests made on the corrosiveness of various sulfur compounds in light oils.

From an accident prevention standpoint the experience in applying sprayed metal may be interesting. The tank was thoroughly steamed out as usual when men are to work in it. There was no odor of gas, but when the sand blast operated for a few minutes removing the scale, the liberated gas drove the workmen out. This suggests one of the bad features of tank corrosion where the scale may contain much oil, and a possible cause of explosions when old tanks are being repaired.

Atmospheric Corrosion

OIL refinery atmosphere will contain comparatively large amounts of CO_2, H_2S and SO_2; where humidity is high, as near the sea, moisture in excess is present on all exposed material. Galvanizing is not very effective in many parts of refinery; by continually painting some protection is obtained. Aluminum paint is very promising in this connection.

Conclusion

CAST iron, wrought iron and steel are being used economically and satisfactorily for nearly all refinery construction. In isolated cases it is desirable to reduce the frequency of failures, as interruption of continuous operation is equivalent to loss of capacity. To this end we are striving to apply

new ideas and materials when they seem feasible and economical. Often a slight change in design or operating method will greatly reduce the trouble.

Such metals as nickel, monel, aluminum, chromium and chrome-nickel-steel would appear to take care of most special refinery corrosion, and their use will extend as price is reduced. Reduction of hydrogen ion concentration can be accomplished in some cases. Laboratory testing of metals gives a fair indication of the proper metal to try, but of course, does not give accurate quantitative data. Electrolytic polarity is a test that should always be made on metals for underwater application. The data from these tests should be checked by that from samples applied as near as possible to actual working conditions.

We speak glibly of sulfur corrosion but with the knowledge that there are over a dozen copounds of sulfur found in crude oil. We know something of the chemical action of H_2S SO_2, S and H_2SO_4 when in the presence of water, oxygen, HCl and Cl_2. The chemical action on metals, their oxides and sulfides is also known, and all of these conditions are to be taken into consideration when dealing with refinery corrosion. By correlating the corrosion results on various metals or alloys as experienced, with laboratory tests, a fair idea may be obtained as to the principal corrosive agent present.

Reporting corrosion in terms of depth-per-year seems desirable, the pitting data, however, is harder to consistently define.

The scrap pile in a large refinery may represent a direct loss of over a quarter of a million dollars a year, which, with better knowledge and concentrated effort, may be reduced a third.

Asks Help to Solve Corrosion Problems

After 20 years experience as a pipe line operating man, confronted with the problems of protecting underground pipe lines from corrosion, E. C. Kincaide of the Gulf Pipe Line Co. feels that the answer is as far away as ever. This is what he told the symposium on corrosion held in Tulsa recently in connection with the seventh annual meeting of the American Petroleum Institute.

He summed up his attitude in the following:

"I, as an operator, appeal to the physicists, chemists and metallurgical engineers to help us on this problem, bearing in mind they must not send some layman with a perfectly prepared speech and probable answers to any questions that may be asked, as the operators who are responsible for the operation and maintenance of lines wish to be sure before making recommendations as to any protective methods. I feel that the question of corrosion of underground pipe lines is practically where it was when Columbus landed in America."

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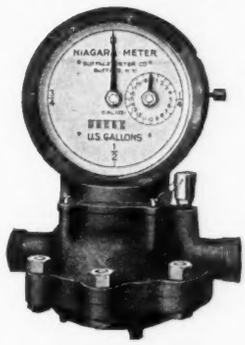

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Refiners Told About Corrosion Resisting Iron

REFINERS who are suffering from rapid destruction of their equipment by corrosion were assured at the meeting of the American Petroleum Institute in Tulsa, that there is a metal suitable to solve most of the corrosion problems that vex them, at a cost that in many cases makes its use economical.

This was in a paper on "Theories for Corrosion and the Modern Method of Combating It," read before the symposium on corrosion Dec. 9 by C. B. Callomon, metallurgical engineer of the Allegheny Steel Co. The description of the new alloy is given below.

By C. B. CALLOMON

THERE are so many types of corrosion in the oil industry that even with our present-day knowledge of the problems and all the obtainable materials to attack the problems we have not yet been able to develop a cure-all, but in 1912 an alloy was developed commercially and patented that offered a solution to most of the corrosion problems.

Unfortunately, the cost of the alloy at that time precluded its use for it sold at any price up to $2.00 per pound, depending on the form in which it was wanted. There is probably not one of you here in this room who has not heard of stainless steel or stainless iron. It is really a remarkable metal stigmatized with an erroneous and misleading name. As stated, up until the present time, it has hardly been within the financial reach of the oil industry, so that its use was confined almost entirely to household cutlery applications.

Low Carbon Product

IN 1921 the company with which I am associated began its researches and in 1923 its production of the low carbon so-called "stainless" steel, under the trade name of Ascoloy. Immediately an alloy was made available which was not only a remedial measure, but an actual cure for many of the most severe corrosion problems. This alloy, which to differentiate it from the high carbon stainless steel has come to be called stainless iron, is a patented one.

The patents are owned and controlled by the American Stainless Steel Co. and it is under license arrangement with this company that all of us who are manufacturing stainless today are enabled to produce it.

You have just heard me use the word "stainless" in connection with this comparatively new alloy. May I just interject the thought here that in recent patent litigation the word "stainless" as applied to any ferrous alloy means generally that the alloy will, if placed in a solution of acidulated copper sulfate of definite strength for a definite time, not show any deposit of copper on its surface, therefore indicating that no attack has taken place. The word stainless as applied to the particular alloy that is commonly called stainless steel or stainless iron does not mean that the alloy will not rust under normal corrosive influences.

It will rust insofar as its surface is concerned, if it is not kept clean—not necessarily, but very probably. You may wonder then what is the particular virtue of this alloy for your problems and in answer I can say that it resists most types of corrosion to an extent that is not only remarkable but almost unbelievable. It will get dirty. It will tarnish in many cases. It will show a rusty surface but the rusting is in no sense a progressive condition. Therefore, the rust is different than the normal rust which we know of and which occurs on ordinary iron or steel.

What Stainless Iron Is

LET me explain by telling what stainless iron, or as I prefer to call it, this particular chrome iron alloy, is. It is an alloy containing from 12 to 16 per cent chromium in most cases, and for special applications from 17 to 20 per cent chromium together with carbon content of less than .10 per cent, a manganese content of less than .50 per cent, together with less than .50 per cent silicon and less than .50 per cent nickel. When the surface of this alloy corrodes it gives a surface which is non-porous and impervious to the passage of air through it. In most cases the corrosion evidenced is a deposit actually built up on the surface of the alloy from exterior sources rather than an actual attack on the metal itself.

A. F. Spengler of Los Angeles, Calif., started out manufacturing and selling core drills bearing his name some years ago. He recently sold out his interests in the company bearing his name and arrived in Tulsa December 7 to become a drilling contractor in Oklahoma with headquarters in Tulsa

I do not mean to convey the idea that no influences will corrode this chromium iron alloy. I merely want to offer this alloy as the most non-corrosive material which has yet been offered commercially at a price that industry can afford to pay.

Stainless iron is obtainable in commercial quantities in commercial forms and at costs which permit not alone its consideration, but its actual use. It is produced not alone by the company with which I am connected but which is, incidentally, the world's largest producer of it, but by many other companies; therefore, assurance is given of more than a single source of supply, which is always a prime consideration where a material is to be used on a commercial scale.

Let me say that the range of obtainable forms includes plates, sheets, bars, rods, wire, welded and seamless tubes and pipe, forgings, castings, rivets, bolt and nut, and special sections. Before proceeding with the discussions of the applications for stainless iron in the oil industry where it is now attacking and beating the corrosion problem a brief resume of its valuable properties will be of considerable value and general interest.

In the annealed condition the alloy has a tensile strength of 75,000 pounds per square inch with an elastic limit of 45,000 pounds per square inch; an elongation of 35 to 40 per cent, and a reduction of area of from 75 to 80 per cent. This statement, therefore, that it is 50 per cent stronger than mild steel is justified considering that the maximum obtainable tensile in mild steel is never in excess of 55,000 pounds per square inch. In the annealed condition stainless iron may be drawn, stamped or spun, soldered, welded or brazed and machined.

Can Be Heat Treated

IN spite of the lower carbon content of the alloy it may be heat treated and if, for example, it be quenched in oil, water or air from 1800 degrees, Fahrenheit, it will show a tensile strength of 175,000 pounds per square inch with an elastic limit of 160,000 pounds and an elongation of 15 per cent in 2 inches. This susceptibility to heat treatment is an extremely valuable asset, making of the alloy considerably more than just a corrosion cure.

And now, just one more matter of importance as to the physical properties of the alloy, and that is its great strength at high temperatures. At 1500 degrees F. stainless iron has a tensile strength of 11,000 pounds per square inch; at 1800 degrees F. this figure is 8000 pounds per square inch; and at 2000 degrees F. it is 4000 pounds per square inch. Tensile strength at high temperature is not only quite desirable but very essential for many applications in oil refinery service.

Our Industry—A Page of Facts and Observations

National Petroleum News

By Paul Wagner

THE TEXAS CO., which considers its Port Arthur works the safest oil refinery in the world, is justly proud of the men responsible for its "SAFETY" showing. The men have cooperated splendidly with a general plant committee and six sub-committees who have labored untiringly for SAFETY says The Texas Co.'s monthly review of refinery operations issued as "The Look Box." Here are a few excerpts from remarks of the management anent SAFETY and industrial relations:

F. P. Dodge, general superintendent: "The indifferent and careless workman is an expensive workman and he is a menace not only to himself alone but to his fellow employe."

W. K. Holmes, first assistant general superintendent: "All men are much better satisfied in clean surroundings, and when an industry maintains clean conditions there is a competition between the better class of men for the positions which become open in such industry."

T. G. Dellinger, second assistant general superintendent: "At times the grass in pastures across the way appears greener. Only common sense will dispel this fallacy. The grass is just as green right where we are and the field for betterment and opportunity just as fertile."

W. H. Elliott, third assistant general superintendent: "Our work, our play and our needs are largely repetition.... In exploring for the new and unknown we should not forget that the old fields are still rich in possibilities."

* * *

OLIVER W. KILLAM, who has been identified with Laredo district development almost since its inception, has been elected president of the Laredo Chamber of Commerce for the third consecutive term. It was another case of the "office seeking the man instead of the man seeking the office," as the board of directors refused to permit Mr. Killam to step out of the job. Besides his extensive producing interests in the Mirando City territory, Mr. Killam also owns a refinery in the Laredo district.

* * *

THE discovery of deep flank production on the Spindletop salt dome, in November 1925, was commemorated at a banquet in Beaumont, Nov. 30, at which time honor guests were M. F. Yount, president of the Yount-Lee Oil Co., and Marrs McLean. Individual producer. McLean had an important part in blocking up acreage on which the Yount-Lee company drilled its south and west flank discovery wells at Spindletop. Yount, as principal stockholder in the company which bears his name, gets credit for Spindletop's comeback in oil history. Of course, Beaumont gives them full credit for their accomplishments.

* * *

PRODUCING activities continue more and more to be directed by specially trained men who qualify either as petroleum engineers or mechanical engineers, or both. In the producing department of the Standard Oil Co. of California, of which J. M. Atwell is general manager, both of his ranking assistants come under the general classification mentioned. M. E. Lombardi, who went to the Standard from the vice-presidency of Pacific Oil Co., was educated both as a geologist and a mechanical engineer; R. C. Stoner, the other assistant general manager, formerly was in charge of geological work in Mexico for his company.

E. G. Gaylord, formerly of the Pacific, heads the development division of the producing department as chief petroleum engineer, assisted by E. J. Young. A chief engineer whose duties embrace mechanical engineering and physical tests of equipment is C. C. Scharpenberg, also attached to the producing department.

* * *

HARRY H. MADDREN, who recently became general field manager of the California Petroleum Corp., with headquarters at Los Angeles, will be remembered in southwestern and Mid-Continent territory as the production executive of the Prairie Oil & Gas Co., at Eastland, Texas, in the spirited days of Ranger development. Until aligning himself with the Calpet interests, Mr. Maddren had been for 15 months general field manager of the United Oil Co., at Los Angeles. After serving the industry first in Pennsylvania and Ohio, Mr. Maddren got his real baptism in oil at Spindletop, in the caprock area development of 1901. Then he went through Sunset-Midway and Coalinga development in California, tried South America from 1914 to 1917, took active charge of Prairie operations in Texas and Wyoming and finally joined the United in 1925. Few important producing areas of the continent are to be found where Mr. Maddren has not had an important part in production since Spindletop days.

IF you happen to visit the Texas Panhandle and see a cloud resembling smoke that almost hides a derrick from view you will not necessarily conclude that an oil field fire is being witnessed. It may be that the drilling crew is merely "pulling out" of the hole and that the cloud results from fine, white cuttings of bentonite brought out with the tools. According to the United States Bureau of Mines bentonite such as found in Panhandle formations has the property of taking up seven times its own volume of water and it sometimes expands to more than six times its original volume. A great deal of drilling grief results when bentonite formations penetrated get wet. Tools stick in the hole as a result of the caving of "mud rings" and strings of casing are "frozen" at times. Many holes, therefore, are drilled "dry," resulting in smoke-like clouds of fine white cuttings.

* * *

IRA L. YATES, who signs the hotel register from Pecos county, Texas, had to wait until his sixty-seventh birthday anniversary before oil royalties began to accrue to his account. The future looks promising, however, since the Mid-Kansas-Transcontinental discovery well on his ranch in eastern Pecos county was good for upwards of 100 barrels initial production at 997 feet. After making its first oil through a 12-inch hole steps were taken to set smaller casing in the well and exploit it under more favorable operating conditions. Of course, his royalty payments are not the first oil money Mr. Yates has had. Lease bonuses on his 26,000 acre ranch mounted into six figures, but doubt the royalties are welcome. His 35 years in Pecos county, including times when drouth conditions nearly drove the ranchers out, won't be forgotten but the memory of them will be softened.

* * *

SHADES of the days when the southern district of Mexico was in its prime of oil production! The petroleum bureau of the department of commerce, industry and labor at Mexico City has figured out that six wells in the Tampico district produced enough oil to fill a pipe line one and a quarter metres in diameter, extending entirely around the world. They were No. 4 Potrero del Llano, which in its productive life gave up 115,175,000 barrels of crude petroleum; No. 7 Juan Casiano, 75,000,000 barrels; No. 7 Los Naranjos, 19,539,000 barrels; No. 4 Cerro Azul, 78,264,000 barrels; No. 1 Chapapote Nunez, 9,000,000; and No. 1 Chinampa, 5,787,000 barrels.

* * *

HARRY M. SAMPLE, president of the National Oil Scouts' Association of America, who represents the Marland Oil Co. of Texas at San Antonio, has been recently spending a considerable part of his time in West Texas. W. H. Spice, district geologist for Marland at San Antonio, resigned Dec. 1 to go with the Pan American Petroleum & Transport Co. in Venezuela.

CHAMPLIN REFINING COMPANY · ENID · OKLAHOMA ·

Cordage Life Can Be Greatly Increased By Common-Sense Precautions

By J. S. McDaniel
Secretary, Cordage Institute, New York
Presented at Tulsa Meeting A. P. I., Dec. 9

THERE are three general sources of damage which shorten the life of cordage; first, mechanical injury, such as bending over too sharp a pulley, second, damage from chemicals, such as an acid, and third, damage from climatic or other conditions of storage such as moisture or dry rot.

Mechanical injury may occur through surface wear, internal wear, excessive tension or improper handling such as permitting the rope to kink in uncoiling.

Probably the most common is surface wear caused by dragging across the ground or one part over another part. Cordage dragged across the ground not only loses some of its substance, but picks up, retains and converts into grinding material a certain amount of grit. In hoisting work unnecessary surface wear comes usually through the rope rubbing against iron or wood beams, or, in the case of poorly aligned pulleys, against the edges of the pulley blocks.

Internal wear, resulting in a breaking up of the fibers, usually results from bending over a too small pulley or any other kind of sharp bend. Extreme tension is put on the outside fibers with the inner fibers taking practically no strain. Where the rope is bent over sharp corners the fibers on the inner side are likely to be cut. Also where excessive bending occurs, and if there is no opportunity for the escape of the heat generated by the fibers sliding over each other, the vitality of the fibers is materially reduced. For these same reasons great care must be taken to use the proper knots, so that "jamming," and its consequent over-stressing of the fibers, may be prevented.

The principle of the contrary turn in rope making must be considered in the care of rope used on a capstan or windlass. If the rope is thrown on always in the same direction, the "afterturn" will be continually thrown out. The rope will be injured and operation delayed. When using rope on a double capstan or nigger head, that is, a capstan on each end of shaft, each capstan having a fall, care must be taken that, with the capstan running and no strain on the rope, the turns left on the capstan do not chafe.

Overloads

NEVER overload rope. It is a good rule not to load a rope to more than twenty-five per cent of its full capacity. In hoisting or lowering, where the power is produced with a winch, care should be taken to prevent any slipping on the drum, so as to eliminate the jerking or sudden application of load. A sudden impact of this kind, although seemingly not great, may more than double the strain on the rope. Once a severe strain approaching the breaking point has been applied to rope, it no longer retains its initial tensile strength. A rope held taut in service when dry should be slacked off immediately it becomes wet. The elastic limit of dry fiber is very near its breaking point but it is quite plastic and swells when wet with water. In swelling, a high tension is produced on the outside fibers and this swelling also shortens the rope and thus brings more strain on it if it is held under tension.

Wet Manila Fiber Lengthens

NOTE: While on this subject of the effects of water on rope, and, due to the practice in some localities of wetting bull ropes, it should be remembered that Manila fiber when wet is plastic. So, when the fibers swell and produce a high tension, they, at the same time, will slowly yield and relieve themselves, assisted by the total strain in the rope. Then when the rope dries and reduces to its original size, it will be considerably longer than before the "wetting" process began. It is a common error to suppose that Manila fiber shortens with wetting. On the contrary, it grows longer. It is the swelling of the many fibers which shortens the rope as a whole, and, as explained before, leads to its being longer, or stretching.

Injury is often caused by improper uncoiling. The proper way is to place the coil flat on its side with the "inside" end down; reach down through the coil and draw the end up through the center of the coil. An ordinary laid rope must come out of the coil counterclockwise. A cable must always come out of the coil clockwise. This is very important to avoid kinking. In handling a drilling cable, place the cable at the back of the rig; follow the procedure outlined above and fasten the end of the cable to the derrick line. The derrick line is now passed through a pulley made fast on the derrick floor in the proper place, after which it is passed over the crown pulley, pulling the cable over and down to the bull-wheel shaft. Now make the end of the cable fast to a spoke in the band wheel and roll the cable onto the bull-wheel shaft by power. Never allow the cable or any cordage to become kinked, for kinking disturbs the "lay" of the rope and consequently shortens its life.

In taking a cable off the rig, the proper system is to run it under a pulley to prevent the cable from coming in contact with sharp corners on the rig or being chafed by nails that might be encountered.

Extreme care should be taken in attaching tools to a Manila drilling cable or cracker so that the strain does not come on one strand causing a cut-in cable. This along with some other questions relating to the use of oil well cordage should be made the subject of complete investigation and research by the Cordage Committee of the American Petroleum Institute.

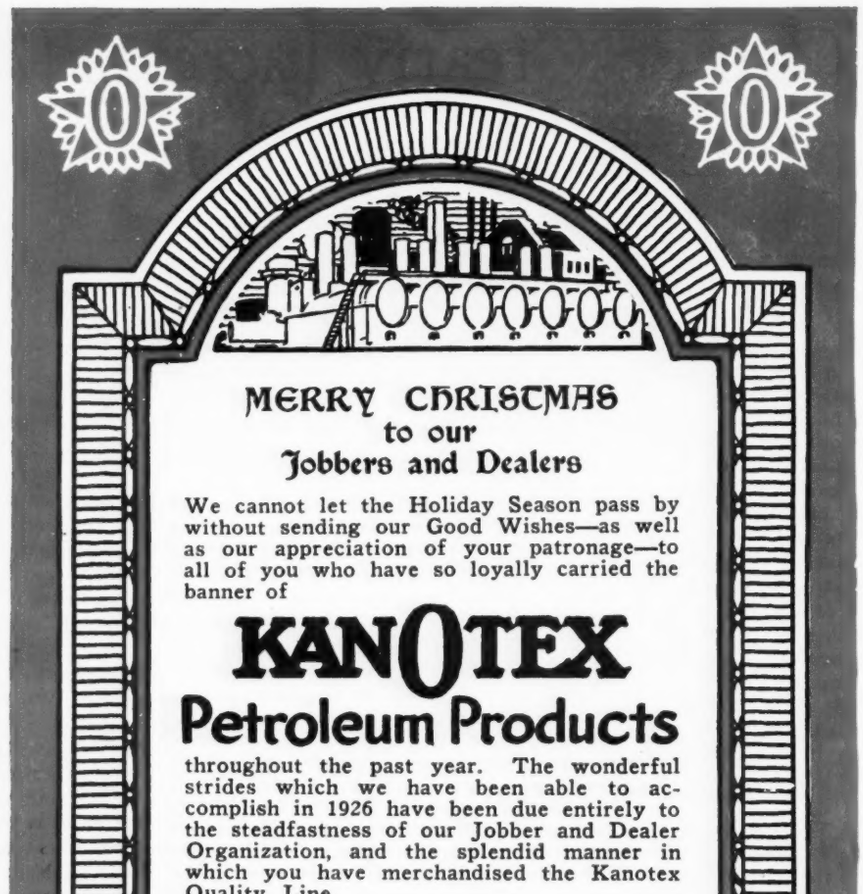
A fishing job many times seriously injures a cable as well as excessive pulling where a cave-in or something like that happens. Many a good cable has been ruined in these two ways and later, used on a straight drilling job, not giving satisfaction. It must be remembered that Manila cordage is made of an elastic fiber, an additional elasticity is given it by laying the product in the manufacturing process, thus giving a spring to the cable or rope. If, by excessive pulling the cable is pulled down to too great an extent, both the elasticity of the fiber and the spring of the lay will be lost, at least to some extent. It is this point that makes Manila cordage and particularly cables superior to other products that do not have this spring nor elasticity.

Another not uncommon cause of injury to cordage, and one seldom recognized, is injury from chemicals, particularly acids and acid fumes. The common commercial acids, such as sulphuric acid, and uric acid, exert a very injurious effect on cordage fibers and are the cause of many mysterious rope troubles. Through ignorance, indifference or carelessness, the common acids are frequently transported, used or stored in close proximity to rope. To lessen the opportunity for chemical injury a rope should be kept away from acids and kept as dry as possible. Keep rope out of reach of animals.

Storage of Rope

LET us read first the paragraph on "Storage of Rope" from "recommended Practices" from the tentative specifications for Manila cordage of the A. P. I.

"All rope stored should be in a dry and well ventilated warehouse, and kept as cool as possible. Rope should be so arranged that a free circulation of air may be had at all times, and it must be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kept dry so that it will not mildew. It should not be stored longer than necessary and never longer than one hot season. It may be placed on wooden floors providing same are well ventilated underneath, but it would be better if it were placed on racks. If stored in warehouse with concrete floor the rope should always be placed so that there will be an air space between rope and floor."

The above applies generally to the storage of all cordage but particularly to the storage of cordage in warehouses or under cover. In the field it is not always possible to store cordage in a building and certain general rules should be followed under such conditions.

If the cordage is dirty, particularly cables, it should be washed, and then thoroughly dried in the sun.

Never store away wet or damp cordage; dry it thoroughly first.

Cover carefully to keep out moisture.

Allow a free circulation of air around the cordage at all times.

If too large to stand on racks, coil loosely on a board platform, well off the ground; put some boards across the top of the cordage and cover with canvas. If galvanized iron is used in place of canvas, keep well off the cordage, particurly in hot weather.

Do not store near acid or where acid has been stored.

Dampness causes mildew, and poor circulation, dry rot. Dry rot is a subject which has received little attention and there is no reliable data at hand in regard to the cause and development of dry rot in rope.

Never allow a wet rope to freeze. The fibers become brittle and break more readily when frozen. If a rope should unavoidably freeze, thaw it out and dry thoroughly before storing away.

Excessive heat will eventually dry out the lubricant of the rope, and reduce the vitality of the fibers.

Drilling cables should never be dropped from one height to another no matter how slight a distance.

During the process of "spudding in" a new well, it might be advisable to use an old cable for the first few hundred feet. This is the most severe work that a cable can be put to.

When the cable is put in place for service and the tools are attached, it is usually run into the hole at a rapid speed, and several sudden stops are made to take the stretch out of it. If this work is too violent, it may cause the cable strands to "pull in;" therefore the stretching process should be done gradually.

There are three classes of drillers who use a cable. First, the man thoroughly skilled, takes proper care and gets all there is in a cable out of it by neither running it too tight nor too loose. Second is the driller, who is said to drill on the "spring of the rope." If he is not very careful, as a rule he will strain the cable and cause it to "pull in." He takes the life out of it by causing it to heat

and burn while drilling. This mode of drilling is perhaps the most destructive, as a whole, on the cable. When one strand pulls in, the others are forced out and are gradually chafed off. Third is the loose driller, who leaves so much rope in the hole that it slashes against the walls of the well, causes it to chafe badly, and often what is called whipping it off from ten to fifteen feet above the tools—in fact, the cable is liable to part any place in the hole, but as a general thing near the rope socket. This method of drilling will make a cable spongy and ragged. But, fortunately for the manufacturers, drillers are usually a skilled class of men, yet many cables are spoiled by careless drillers, or before drillers get experience.

"Dad" Cross is New Chief of Indiana Jobbers

INDIANAPOLIS, Dec. 18.— W. D. Cross, Jr., Geneva, Ind., Eastern Indiana Oil Supply Co., is the new president of the Indiana Independent Petroleum Marketers' Association at its annual meeting here today. He succeeded W. H. Trimble, Western Oil Refining Co., Indianapolis. Mr. Cross is familiarly called "Dad" and is literally the biggest oil man in the state.

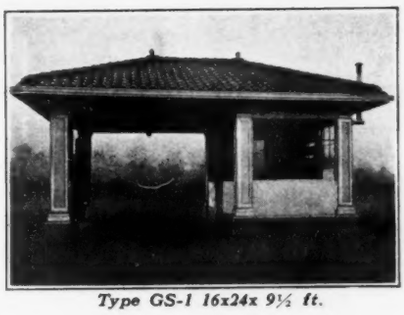
J. B. Gafill, Gafill Oil Co., South Bend, Ind., was chosen vice-president to succeed R. L. Tudor, Great American Gasoline Co., Kokomo, Ind. H. H. Johnson, Supreme Oil & Refining Co., Indianapolis, was re-elected treasurer.

Selection of directors who are chosen territorially, employing a secretary, and taking care of other matters incumbent upon the officers about the time of the annual election, will be done at a subsequent meeting of the executive committee.

Many compliments were heard during the convention reflecting upon the work of Sam Hurd, the secretary. The retiring president's report pointed out that the state was enjoying a quiet season with fair margins for the jobbers, due substantially to Mr. Hurd's work. Moreover, his convention was commented upon as an unusual meeting with record-breaking attendance.

This meeting was attended by 135 registrants, divided, 77 jobbers and their guests, 40 refinery representatives, and 18 equipment men. The clerk that took the names of registrants, marked each man with a tiny bow of ribbon, jobbers white, and others blue, the bow being fastened to the man's coat lapel with an ordinary straight pin. The ribbon cost less and looked better than most convention badges.

"Company Tables" was another feature of the oil men's luncheon. In the dining room were five extra large tables with a filling station canteen globe for a center decoration. The globes told the story. They were respectively a Marland table, a Cosden table, a Sinclair table, a Vacuum table and a Lincoln table. All five were filled and the guests took conspicuous parts in the program.



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Wrought Iron Pipe Used 30 Years, Again in Service

HOUSTON, Dec. 18

A QUANTITY of wrought iron line pipe that had been in service for 30 years between Marcus Hook and Warren, Pa., is now being used satisfactorily in the Breckenridge district of Texas, where it forms a part of the network of the casinghead gas gathering system of the Humble Oil & Refining Co.

The 8-inch pipe, which originally was a part of the old Crescent pipeline system, was taken up about a year ago and sold through the Joseph Greenspons Iron & Steel Co., of St. Louis, to the Humble. It was placed in service again after metallurgical tests made in the laboratory of the Hughes Tool Co., at Houston, had shown very slight evidence of corrosion visible on the surface. The pipe was manufactured by the Reading Iron Co., of Reading, Pa.

What Tests Showed

TESTS by the Hughes Tool Co., to determine the chemical and microscopic properties of the pipe, were made under routine laboratory methods, the chemical analysis showing:

Carbon	.01
Manganese	.05
Phosphorus	.248
Sulphur	.032
Copper	.062

The photomicrographs shown in the accompanying cut were taken at 100 diameters, on both transverse and longitudinal sections of the wall of the pipe; first, on the unetched specimens, and also after etching with 5 per cent nitric acid solution.

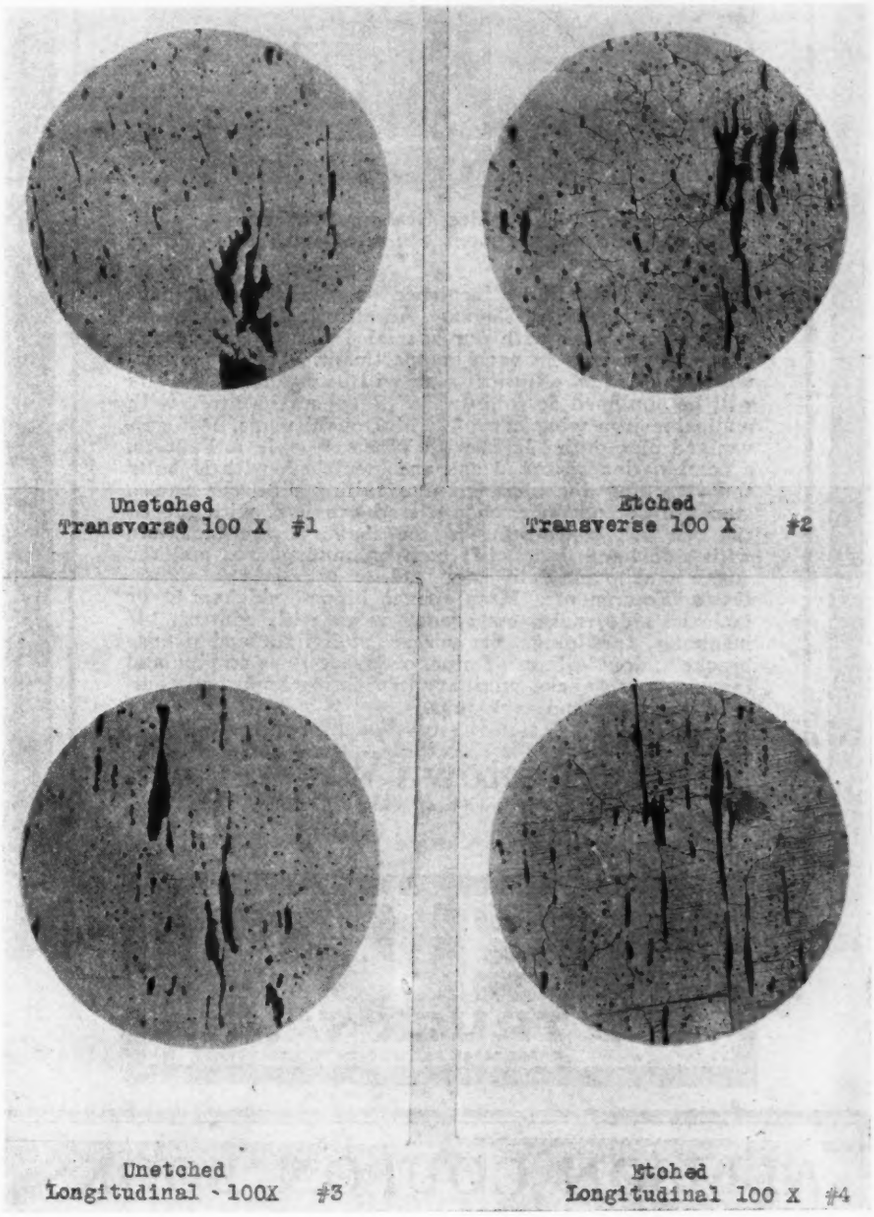
"Aside from the large amount of slag present," reads the report, "the only unusual feature of interest shown by the photomicrographs is the fact that the slag particles are elongated in both longitudinal and transverse planes, which would indicate the sheet from which the pipe was made had been rolled in two directions at right angles.

"The appearance of the sample as received at the laboratory was that of practically new pipe with very little indication of pitting or corrosion."

Comparison With Steel

A COMPARISON of this wrought iron pipe was afterwards made with steel pipe of 0.25 per cent copper and steel pipe of 1 per cent copper contents. The comparison showed:

	Steel Pipe 0.25% Copper	Steel Pipe 1% Copper	Old Wrought Iron Pipe
Iron	98.57	98.579	99.597
Carbon	.40	.09	.01
Manganese	.60	.45	.05
Phosphorus	.04	.011	.248
Sulphur	.04	.03	.032
Silicon	.10	.00	.00
Copper	.25	.84	.063
	100.0	100.0	100.0



Special attention was called to the low carbon and low manganese contents shown in the comparison of the wrought iron pipe with the other materials.

Barriers Against Corrosion

THE accompanying photomicrographs, which show long filaments of slag present in the wrought iron pipe, indicate the existence in the material of long barriers against corrosion; in other words the metal is made up of innumerable fibers surrounded by slag filaments and has within itself the power of distribution of strains and stresses.

It is explained by the Reading Iron Co., pipe manufacturers, that there are several hundred thousand slag filaments in 1-inch square cross section of wrought iron and, being non-corrodible, they will

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Extra Equipment: Metal panel hinged sideboards or inclosed side racks, emergency valve with control, 14" manholes, fuse plugs, fire screens, tail light and license brackets, double lines of pipe, or larger lines of pipe and faucets, barrel racks, auxiliary lubricating tanks and combination stake and tank jobs.

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obstruct the progress of corrosive attack.

Steel does not contain this slag, explains the Reading company, and therefore a corrosion pit once started eats its way through in a comparatively short time.

Gives Greater Resiliency

THE rope-like structure of wrought iron, which results from the squeezing and rolling of grains into elongated fibres, is described as giving this material greater resiliency, and enables it to resist shocks and vibration.

The laboratory test made by the Hughes Tool Co., at the instance of the Humble, bore out the existence of elongated slag particles in the pipe and the virtual absence of corrosion after the pipe had been previously in use for 30 years.

* * *

Midwest Air Filters, Inc., Bradford, Pa., has off the press bulletin F 4 describing the performance of its filters in connection with compressors and internal combustion engines, and bulletin C 2, describing the application of its filter cells in industrial fields, including the oil refining industry.

Losses at plants because of dust, damage to equipment and unsanitary working conditions resulting from dusty air, will be prevented by the use of Midwest air filters, the bulletin states. Superior cleaning efficiency at lower operating cost is claimed for these filters which are constructed of all-metal filter cell.

* * *

The Dredge and Harbor Department of the American Brown Boveri Electric Corp. is designing and building shallow-draft equipment for transporting oil where ordinary draft vessels cannot be used.

Two light-draft, steel decked barges for lighterage purposes are now being constructed at the Corporation's Camden, N. J., shipyards for the Venezuela Gulf Oil Co., and will be delivered afloat in New York harbor for towing to Maracaibo, Venezuela.

* * *

The U. S. Air Compressor Co., Cleveland, O., has appointed Hayden R. Williams district manager for its central territory, which includes Ohio, West Virginia, Michigan, western New York and western Pennsylvania. Mr. Williams was formerly southwestern manager for the Sparks-Withington Co. for four years.

* * *

Guarantee Liquid Measure Co., Rochester, Pa., manufacturer of Fry gasoline pumps and Marvel oil marketing equipment, has awarded the contract for the construction of its new factory at Rochester to the Rust Engineering Co., Pittsburgh. The plant is to be completed by May 1.

Oil Patents Issued Recently

Production

Tool-Joint Water Head.—Samuel J. Hindman, Houston, Tex. Filed Oct. 11, 1924. No. 1,608,505.

Well-Drilling Apparatus.—Clyde E. Bannister, Houston, Tex. Filed June 26, 1925. No. 1,608,575.

Rotary Trip Tong.—Sadie C. Winfrey, Norphlet, Ark. Filed Aug. 24, 1925. No. 1,608,641.

Method of and Means for Preventing Corrosion of Well Tubing, Casing, and Working Barrels.—Ronald Van Auken Mills, Sandy Spring, Md., assignor to Peter Q. Nyce, Washington, D. C. Filed Sept. 10, 1924. No. 1,608,709.

Casing Spear.—William Wright, Tulsa, Okla. Filed Oct. 19, 1923. No. 1,608,828.

Method of Cleaning Oil Wells.—Elvin Tilton, Wheeling, W. Va., assignor of one-half to C. Monroe Watson, Wheeling, W. Va. Filed Aug. 12, 1922. No. 1,608,869.

Sucker-Rod Guide.—William Werner, Mexia, Tex., assignor to Mexia Planing Mill Co., Mexia, Tex. Filed Dec. 13, 1924. No. 1,608,873.

Under Drill Bit.—Raymond E. Korts, Oscar, Okla. Filed Feb. 15, 1926. No. 1,608,945.

Pump for Oil Wells.—George B. Maegly, Houston, Tex. Filed July 20, 1922. No. 1,608,947.

Oil-Well Plug.—Thurman C. Carter and Allen R. Best, Joplin, Mo., assignors to The Eagle-Picher Lead Co., Cincinnati, Ohio. Filed Sept. 2, 1924. No. 1,609,153.

Swivel-Joint Sucker-Rod Shock Absorber.—George E. Philpy, Burkburnett, Tex. Filed May 13, 1925. No. 1,609,189.

Pull Rod Pump Jack.—Julius H. Holmgreen, San Antonio, Tex. Filed Sept. 23, 1924. No. 1,609,250.

Refining

Process for Producing Gasoline and Other Hydrocarbons.—Bernard Ormont, New York, N. Y., assignor to Bernard Ormont Associates, Inc., New York, N. Y. Filed May 27, 1921. No. 1,608,664.

Apparatus for Effecting Continuous Distillation.—Francis M. Hess, Whiting, Ind. Filed Apr. 29, 1922. No. 1,608,741.

Scraper for Stills.—James H. Burlingham, Port Arthur, Tex., assignor to The Texas Co. Filed June 11, 1920. No. 1,608,767.

Art of Converting Hydrocarbon Oils.—Benjamin B. Schneider, Wilmette, Ill., assignor to Standard Oil Co., Whiting, Ind. Filed June 12, 1925. No. 1,609,000.

Apparatus for Converting Hydrocarbon Oils.—Benjamin B. Schneider, Wilmette, Ill., assignor to Standard Oil Co., Whiting, Ind. Filed June 12, 1925. No. 1,609,001.

Method of Jointly Manufacturing Carbureted Water Gas and Volatile Hydrocarbon Motor Fuels.—Frank A. Howard, Elizabeth, N. J., assignor to Standard Development Co. Filed Mar. 24, 1921. No. 1,609,023.

New Publications

A. O. Smith Corp., Milwaukee, has just published a catalog of its Smithsteel couplings for oil field use. Pictures of the Smith laboratories and works are reproduced with descriptions of the processes through which the steel passes from the chemical laboratory to the finished couplings. Five types and a great many sizes of couplings are cataloged. The types are Smithsteel California pattern casing, A. P. I. casing, A. P. I. drill pipe, A. P. I. external upset tubing, and A. P. I Plain tubing couplings.

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On Christmas Day, 1899, P. H. Morton, playing the Meyrick Links, *twice* made the same hole in one stroke.

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Production practices which have developed in California and about which little is known in other fields, are given.

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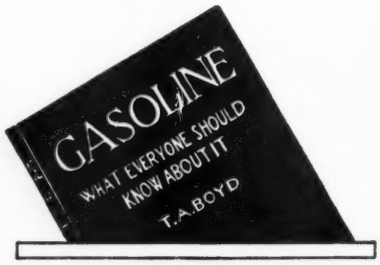

This is the complete story of "*Gasoline*" told in popular language, and written by an authority on the subject of its use in motor cars—T. A. Boyd, head of fuel oil section, General Motors Research Corp.

What gasoline is, where it comes from, its properties, what distinguishes good gasoline from bad, how the motorist can get more miles out of a gallon, and help in the economy of this important fuel—all these facts are given in chatty, non-technical style and profusely illustrated.

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ON THE LAZY BENCH

National Petroleum News

English As She Is Spoke

Vernon Brown (Brown & Pengilly Co., Los Angeles and San Francisco, Cal.) stopped off at a small country station when a freight train pulled in and sidetracked for the passenger train. The passenger train arrived and pulled out. Then the freight started to do its switching. A placid, well-dressed woman had alighted from the passenger train and was passing close to one of the freight brakemen when he yelled to his buddy:

"Jump on her when she comes by, Bill, run her down by the water tank, cut her in two and bring the head end up by the depot!"

The lady picked up her skirts and ran for the station, yelling murder at every jump.

—The Texas Co. Bit and Tongs

◈ ◈ ◈

Visitor to guide in an insane asylum: And who is that poor wretch who keeps moving both arms around in a circle like a windmill?

Guide: He's the absent-minded prof. who tried to set his watch by the hands of an elevator dial.

—Union Oil Bulletin.

◈ ◈ ◈

This May Be Hard on a Fat Man

Manufacturers of knitted bathing suits are standardizing suit measurements as a part of their program of industrial stabilization.

—Oakite News Service

◈ ◈ ◈

A farmer, who was always complaining about everything was showing the result of fine growing weather and superior skill in cultivating, when his visitor said to him:

"Well, you ought to be satisfied with such crops as these. There is certainly nothing lacking. You have nothing to kick about this year."

The old farmer stood in a meditative mood for a moment, then replied: "Well, you know, son, such crops as these is pesky hard on the soil."

—Magnolia Oil News

◈ ◈ ◈

Traffic Cop: "What's your name?"

Truck Driver: "It's on th' side of me wagon."

Cop (trying to read name): "It's obliterated."

Driver: "Yer a liar. It's O'Brien."

—Union Oil Bulletin.

◈ ◈ ◈

It takes about 1500 nuts to hold an automobile together, but it takes only one to scatter it all over the landscape.

—Union Oil Bulletin.

A Doer

(Maybe he was a secretary)

"What position did you hold in your last place?" asked the merchant.

"I was a doer, sir."

"A doer! What's that?"

"Well sir, you see, when my employer wanted anything done he would tell the cashier, the cashier would tell the bookkeeper, the bookkeeper would tell the clerk, and the clerk would tell me."

"And what would happen then?"

"Well, sir, as I hadn't anyone to tell it to I'd do it."

—Magnolia Oil News

◈ ◈ ◈

"Who will drive this car away for $100?" read the sign on the dilapidated flivver in the dealer's window.

A gob passed, read it through twice, then entered the store. "I'll take a chance," he offered. "Where's the hundred bucks?"

—Union Oil Bulletin.

◈ ◈ ◈

Wearing of the Green

Golf Club Secretary (tactfully): Good try, but don't you think you would do much better without such high heels on your shoes?

Lady Novice: Oh, I like them. One can get such a good grip on the greens.

—Magnolia Oil News

◈ ◈ ◈

Doctor—What sort of a night did Major Moper spend?

Mrs. Moper—He seemed a little peevish, doctor—he asked for water several times.

H'm! Still delirious, apparently.

—Union Oil Bulletin.

◈ ◈ ◈

Well Pleased

Budd—"Did your girl's father become quite violent when you asked for her hand?"

Dubb—"Violent? Good gosh, I thought he would shake my arm off."

—Magnolia Oil News

◈ ◈ ◈

"George, I'll give you a pint of Scotch if you'll hurry over to my house and get my grip. Hurry now. . . . What! Haven't you gone yet?"

"Gone? Boss, I's back!"

—Union Oil Bulletin.

◈ ◈ ◈

"I saw the doctor enter your house. I hope it was nothing serious!"

"It was very serious! He called to collect his bill!"

—The Booster

ALL-IN-1 FOLIO

$24.00
Less 10% for cash

Closed, 301 is a handsome Portfolio of selected, 5 oz., black cowhide. Open however, it is an efficient, attractive Display Case, containing 18 four ounce cut-bottom bottles with metal capped corks, and 6 one ounce squat grease jars. There are no trays to lift out, no metal clips to break the bottles. The flaps are lined with washable Keratol, and the samples backed against red plush. There is also an ample pocket for order book and literature. Satisfaction is guaranteed. Your name embossed in gold *free*.

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is a problem in CHEMISTRY

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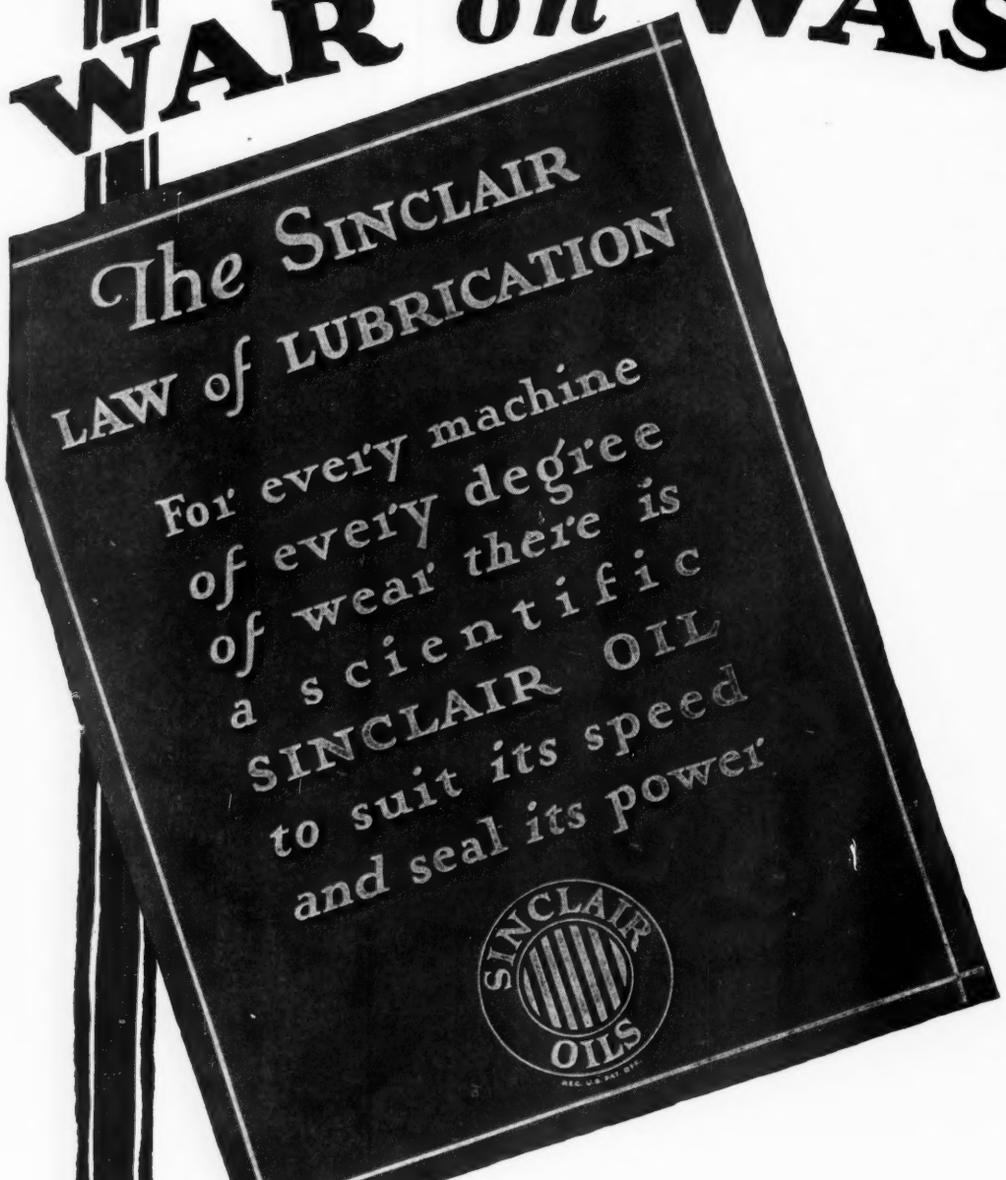
Tret-O-lite

Reg. U. S. Pat. Off.

WAR on WASTE!



THE motorist, in buying oil, is entitled to correct lubrication for his engine—and it is the dealer's responsibility to see that he gets it. Sinclair feels that responsibility—and therefore manufactures Opaline Motor Oil to sell according to the Sinclair Law of Lubrication—a different grade of Opaline Motor Oil "for every degree of wear" of the engine.

This means correct lubrication and economical transportation. It is the motorist's protection against *Waste of Power* and wearing of parts. This is the Sinclair dealer's method of making more satisfied customers.

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SINCLAIR OPALINE MOTOR OIL
REG. U. S. PAT. OFF.

1916-26—TEN YEARS OF MANUFACTURING AND DISTRIBUTING PETROLEUM PRODUCTS OF QUALITY

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Refinery - Tank Wagon Markets

National Petroleum News

Exporters Buying Gasoline and Kerosene; Domestic Business in Holiday Lull

Staff Special

TULSA, Dec. 18

THE annual holiday lull, which Mid-Continent refiners have learned to take as a matter of course just as they do the seasons and evaporation losses, began encroaching on the refinery market this week. Despite this encroachment, however, refiners maintained a uniformly steady market on practically all commodities.

More export buying of both gasoline and kerosene, and one fairly large purchase of U. S. Motor contributed their part toward keeping prices steady. Several refiners said inquiries were somewhat slower during the week from the jobbing trade, but they know the jobber is anxious to keep down inventories for the remainder of the year, just as they are anxious to hold their stocks to as low a mark as possible.

One large Oklahoma refiner granted an option on 3,500,000 gallons of 61-63, 390 e.p. gasoline late last week and on 1,000,000 gallons of 44 gravity kerosene. This option was exercised early in the week, the gasoline bringing 10¼ cents per gallon and the kerosene 7½ cents. About the time this purchase was announced another company circulated an inquiry for approximately 200 cars of 41-43 gravity kerosene, but as far as could be learned the deal had not been closed at the time this was written.

One refiner who said he had quoted 6 cents per gallon on the order, added the statement that he had been in touch with the prospective buyers late Tuesday afternoon and they had indicated at that time that they might hold off three or four days before placing the order.

More Export Buying

EXPORTERS have let it be known for several days that they would buy 64-66, 375 e. p. gasoline in north Texas at 10½ cents. Refiners were too well sold up this month, however, to consider this bid. Late in the week the Sinclair Refining Co. bought approximately 1,000,000 gallons of 64-66 gasoline in Texas at 10⅝ cents. Refiners have been getting from 10¾ to 11 cents for domestic shipments. In view of the fact that exporters have been interested at prices within an eighth of a cent of the low price for domestic orders, the trade in north Texas is inclined to believe the present strong market will continue for some time, since refiners have also indicated they will sell instead of hold back their material in storage.

One export company representative said Friday, that he would not be surprised to see the Texas refiners do a little gambling, by not taking any more orders until around the first of the year. His theory is that since they are so well sold up for the remainder of this year, a better foreign demand would have the tendency to stimulate buying causing a resultant higher price after Jan. 1.

One or two refiners in Kansas have had some difficulty the past week or 10 days in moving their production of U. S. Motor. Some low quotations were sent out for resale. Thursday and Friday the Standard Oil Co. of Indiana bought 50 cars of U. S. Motor in their field, and were understood to have taken an option on 50 more cars. This purchase was reported first as an export sale, but later information indicated the Standard would use the material for domestic demand. The buy put the Kansas market in considerably better shape.

Marketers Have Some Material

MARKETERS say they have been doing very little new buying this week. Many of them say they own considerable gasoline which they want to work off before the end of the year. Some 58-60, 473 e.p. gasoline has been moving this week out of Arkansas as low as 8⅞ and 9 cents per gallon. This material, according to a careful check by the writer, was in the hands of marketers who had bought it for over the month shipment at a low figure based on Group 3 freight schedule.

There has been practically no change in low gravity gasoline in Oklahoma this week. With refiners working on export orders in Texas there is practically no 450 e. p. gasoline in that field, and prices were stronger than in Group tically nominal.

Several of the larger Oklahoma refiners maintained quotations of 9¾ cents on 58-60 U. S. Motor the entire week. Sales at this figure, however, were few and far between.

The bulk of Oklahoma U. S. Motor moved during the week within a 9¼ to 9½ cent range. Practically all the U. S. Motor gasoline in Texas has been sold up, according to several of the trade, and prices were stronger than in Group 3 Louisiana refiners were doing a good business at 9¼ to 9½ cents in their differential territory, and two of them were contemplating advancing their price to 9¾ cents, when the Standard of Louisiana announced a 2-cent tank wagon cut throughout its territory on Wednesday. Arkansas refiners kept their U. S. Motor price pegged at 9½ cents on all new business. Weather conditions in some of the marketing territory of the Kansas refiners kept them from moving all their production and a few quotations at 9⅛ cents were sent out about the middle of the week. The Standard of Indiana purchase however, resulting in prices of 9½ to 9¾ cents being asked as the week closed.

The domestic demand for higher gravity gasolines was somewhat slower this week but prices were practically unchanged. Refiners in both Oklahoma and Texas received from 10¼ to 10½ cents for their 60-62, 400 e. p. gasoline, and around 10¾ to 11 cents for 64-66, 375 e. p. material. Kansas refiners obtained about a quarter of a cent more for their material due to the freight differentials.

Naturals Still Tight

NATURAL gasolines continued to become scarcer in the Mid-Continent this week. Two companies were in the market practically the entire time to get material to fill out on their contract shipments. Practically all manufacturers said their stocks have been steadily decreasing the past two months.

The colder weather has made Grade A an unusually scarce product. Large Grade AA orders meanwhile, have taken all available material with the result that Group 3 prices today were a quarter of a cent above those of a week ogo.

Grades B and BB have been more plentiful this week, nevertheless prices have moved up slightly. Grade C has been comparatively easy to obtain but prices also have moved up fractionally. One buyer paid 9 cents Friday for five cars of doctor and corrosion test Grade C for deferred shipment, stating that he felt that was a fair price inasmuch as he anticipated the market would be at or above that figure by the time the material was shipped. Another company today bought 25 cars of Grade AA at 9¾ cents. In Texas all grades have

(Continued on page 101)

ANNOUNCEMENT

Concentration of Sludge Acid can *now* be accomplished *Satisfactorily*—that is

to HIGH STRENGTH
in ONE STAGE
with LOW COST and
with HIGH YIELD

WITHOUT Packed Towers
Electrical Precipitators
High Speed Blowers
Barometric Condensers
Vacuum Pumps, or
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AVOIDING Fume Nuisances
Clogging of Apparatus
Pumping Acid in Process
High Heat Losses
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Filthy Product

The Geyser-Action Process

(Using Skoglund's Acid Concentrator)

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Patented and patents pending

To Refiners who are interested: we will furnish full particulars and show the Process in operation.

GEO. F. HURT ENGINEERING CORPORATION

52 VANDERBILT AVE.,
NEW YORK CITY

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, Kansas, North and South Texas, Louisiana, Arkansas, California and New England

GASOLINE AND NAPHTHA

	Prices Dec. 20	Prices Dec. 13	Prices Dec. 6
PENNSYLVANIA			
52-54 Naphtha	11¾-12	11¾-12	11¾-12
54-56 Naphtha	11¾-12	11¾-12	11¾-12
58-60 Gasoline	11¾-12	11¾-12	11¾-12
60-62 Straight-run gasoline	12¾-12¾	12½-13	12½-13
64-66 Straight-run gasoline	13¼-13¾	13½-13¾	13½-13¾
68-70 Straight-run gas.350-360 E.P.	14 -14½	-14½	-14½
68-70 Straight-run gas.305-320 E.P.	19 -20	19 -20	18 -20
OKLAHOMA			
48-50 450 E. P. naphtha	9 - 9⅛	9 - 9⅛	8¾- 9
50-52 450 E. P. naphtha	9 - 9⅛	9 - 9⅛	8¾- 9
56-58 450 E. P. gasoline	8¾- 8⅞	8¾- 8⅞	- 8¾
56-58 U. S. Motor gasoline	- 9	- 9	8⅞- 9
58-60 450 E. P. gasoline	8⅞- 9	8⅞- 9	8¾- 8⅞
58-60 U. S. Motor 437 E. P.	9¼- 9½	9¼- 9½	- 9¼
60-62 400 E. P. gasoline	10⅝-10⅜	10¼-10½	10⅝-10⅜
64-66 390 E. P. gasoline	10½-10¾	10½-10¾	10¾-10⅝
64-66 375 E. P. gasoline	10¾-11	10⅞-11	10⅝-10⅞
68-70 350-360 E. P. gasoline	11¼-11½	11¾-11½	11¼-11½
64-66 437 E. P. blend	9 - 9⅛	9 - 9⅛	- 9
KANSAS*			
58-60 U. S. Motor gasoline	9½- 9¾	9½- 9⅝	9¾- 9½
60-62, 400 E.P. gasoline	10⅜-10⅝	10½-10¾	10½-10¾
64-66, 375 E.P. gasoline	11 -11¼	11 -11¼	-11
*F. O. B. refinery Kansas destination.			
NORTH TEXAS			
48-50 450 E. P. naphtha	9 - 9¼	9 - 9¼	8¾- 9
56-58 450 E. P. gasoline	8¾- 9	8¾- 8⅞	8½- 8¾
58-60 450 E. P. gasoline	8⅞- 9	8¾- 9	8⅝- 8⅞
56-58 U. S. Motor gasoline	9⅛- 9¼	9 - 9⅛	8⅞- 9
58-60 U. S. Motor gasoline	9¼- 9½	9¼- 9½	9 - 9¼
64-66 390 E. P. gasoline	10½-10¾	10¾-10⅝	10¼-10½
64-66 375 E. P. gasoline	10¾-11	10¾-11	10⅝-10¾
68-70 350-360 E. P. gasoline	-11½	-11½	11¼-11½
NORTH LOUISIANA			
58-60 U. S. Motor 437 E. P.	9¼- 9½	9¼- 9½	- 9¼
ARKANSAS			
56-58 450 E. P. gasoline	- 9	- 9	- 9
58-60 450 E. P. gasoline	- 9¼	- 9¼	- 9¼
58-60 U. S. Motor gasoline	- 9½	- 9½	9¾- 9½
CALIFORNIA			
*54-58 U. S. Motor 437 E. P.	9 - 9½	9 - 9½	9 - 9½
*58-61 U. S. Motor, 437 E. P.	10½-10¾	10½-10¾	10½-10¾
*42-45 Engine distillate,445-480E.P.	7 - 7⅛	7 - 7⅛	7 - 7⅛
*2c tax to be added if used in state.			
NEW ENGLAND (F. O. B. Boston and Fall River)			
58-60 U. S. Motor gasoline	-12¼	-12⅛	12 -12⅛

NATURAL GASOLINE

(Note: End point of all grades, not over 375° F.)

OKLAHOMA			
Grade AA, 80-87.9 375 E. P.	- 9¾	- 9½	9¼- 9½
Grade A, 72-79.9 375 E. P.	- 9¾	- 9½	9¼- 9½
Grade BB, 84-92, 375 E. P.	8¾- 8⅞	- 8¾	8½- 8¾
Grade B, 76-83.9, 375 E. P.	8¾- 8⅞	- 8¾	8½- 8¾
Grade C, 80-90, 375 E. P.	- 8⅝	8⅜- 8½	- 8¼
NORTH LOUISIANA			
*Grade Double A	-10	9¼- 9¾	9¼- 9¾
*Grade Double B	9⅜- 9½	9⅜- 9½	9⅜- 9½
*Grade C	9 - 9¼	9 - 9¼	9 - 9¼
*F. O. B. Monroe District.			
NORTH TEXAS			
*Grade Double A	- 9¾	9½- 9⅝	- 9½
*Grade A	- 9¾	9½- 9⅝	- 9½
*Grade Double B	- 9⅛	8⅞- 9	- 8⅞
*Grade B	- 9⅛	8⅞- 9	- 8⅞
*Grade C	- 8¾	- 8¾	- 8¾
*F. O. B. Breckenridge.			
CALIFORNIA			
75-85, 375-390 E. P. blend	10½-11½	10½-11½	10½-11½
PENNSYLVANIA			
68-70 Grav. 437 E. P. blend	12¾-12½	12¾-12½	12¾-12½
64-66 Grav. 437 E. P. blend	12 -12½	12 -12½	12 -12½
60-62 Grav. 437 E. P. blend	12 -12½	12 -12½	12 -12½
68-70 Grav. 420 E. P. blend	12¾-12½	12¾-12½	12¾-12½

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	8¼- 8¾	8¼- 8½	8 - 8¼
46 Water White Kerosene	- 9	8¾- 9	8½- 8¾
47 Water White Kerosene	9¾- 9½	9¼- 9¾	9 - 9¼
OKLAHOMA			
41-43 Water White Kerosene	6¼- 6⅜	6¼- 6½	6¼- 6½
42-44 Water White Kerosene	7 - 7¼	7 - 7¼	7 - 7¼
KANSAS			
41-43 w. w. kerosene	6½- 6¾	6½- 6¾	- 6¾
42-44 w. w. kerosene	- 7½	- 7½	- 7½
NORTH TEXAS			
40-42 Water White Kerosene	6 - 6⅛	6¼- 6⅜	6¼- 6⅜
41-43 Water White Kerosene	6¼- 6⅜	6⅜- 6½	6⅜- 6½
NORTH LOUISIANA			
41-43 Water White Kerosene	- 7¼	- 7¼	7 - 7¼
ARKANSAS			
41-43 Water White Kerosene	- 7	- 7	- 7

	Prices Dec. 20	Prices Dec. 13	Prices Dec. 6
CALIFORNIA			
38-40 Water White Kerosene	6 - 6¼	6 - 6¼	6 - 6¼
NEW ENGLAND			
**40-43 Water White Kerosene	**-10¼	**-10¼	**-10¼

NEUTRAL OIL

PENNSYLVANIA (Viscosity at 70° F.)			
200 Vis. No. 3 Assoc. Filt.	29 -29½	28½-29	28½-29
180 Vis. No. 3 Assoc. Filt.	27 -27½	26½-27	-26½
150 Vis. No. 3 Assoc. Filt.	24½-25	23¾-24	23 -24
(Non-Viscous)			
34 Grav. 350-360 Flash	8 - 8¼	8 - 8¼	8 - 8¼
36 Miners Neutrals 300-305 Flash	7½- 7¾	7½- 7¾	7½- 7¾
OKLAHOMA (Viscosity at 100° F.)			
100 Vis. No. 2 color	7 - 7½	7 - 7½	7 - 7½
150 Vis. No. 3 color	9 -10	9 -10	9 -10
150 Vis. No. 4 color	- 9¾	- 9¾	- 9¾
180 Vis. No. 3 color	10 -11	10 -11	10 -11
180 Vis. No. 4 color	10 -10½	10 -10½	10 -10½
180 Vis. No. 5 color	10 -10¼	10 -10¼	10 -10¼
200 Vis. No. 3 color	10¾-11¾	10¾-11¾	10¾-11¾
200 Vis. No. 4 color	-11½	-11½	-11½
200 Vis. No. 5 color	9¾-11¼	9¾-11¼	9¾-11¼
220 Vis. No. 3 color	12 -13½	12 -13½	12 -13½
220 Vis. No. 4 color	-13	-13	-13
220 Vis. No. 5 color	12 -12¾	12 -12¾	12 -12¾
240 Vis. No. 3 color	14 -15	14 -15	14 -15
240 Vis. No. 4 color	-14½	-14½	-14½
240 Vis. No. 5 color	13 -14	13 -14	13 -14
280 Vis. No. 3 color	16 -17	16 -17	16 -17
280 Vis. No. 4 color	-16½	-16½	-16½
280 Vis. No. 5 color	15 -16	15 -16	15 -16
300 Vis. No. 5-6 color	-17	-17	-17
GULF COASTAL (Viscosity at 100° F; pour test 0)			
100 Vis. No. 2 Color Unfilt. Pale	8 - 9	8 - 9	8 - 9
200 Vis. No. 3 Color Unfilt. Pale	11 -12	11 -12	11 -12
300 Vis. No. 3 Color Unfilt. Pale	12 -13	12 -13	12 -13
500 Vis. No. 3½ Color Unfilt. Pale	14 -15	14 -15	14 -15
750 Vis. No. 4 Color Unfilt. Pale	17 -18	17 -18	17 -18
200 Vis. No. 5½ Color Red Oil	9 -10	9 -10	9 -10
300 Vis. No. 5½ Color Red Oil	10 -11	10 -11	10 -11
500 Vis. No. 6 Color Red Oil	12 -13	12 -13	12 -13
750 Vis. No. 6 Color Red Oil	15 -16	15 -16	15 -16
CALIFORNIA (Viscosity at 100° F.)			
100 Vis. No. 2 color	9¼-10	9½-10	9½-10
100 Vis. No. 3 color	8 - 8½	8 - 8½	8 - 8½
200 Vis. No. 3 color	10 -10½	10 -10½	10 -10½
300 Vis. No. 3 color	11 -11½	11 -11½	11 -11½
450 Vis. No. 3½ color	13 -13½	13 -13½	13 -13½
550 Vis. No. 3½ color	15 -15½	15 -15½	15 -15½
600 Vis. No. 3½ color	15½-16	15½-16	15½-16
100 Vis. No. 5 color	7 - 7½	7 - 7½	7 - 7½
200 Vis. No. 5 color	9 - 9½	9 - 9½	9 - 9½
300 Vis. No. 5 color	9½-10	9½-10	9½-10
400 Vis. No. 6 color	11½-12	11½-12	11½-12
500 Vis. No. 6 color	12 -12½	12 -12¼	12 -12¼
600 Vis. No. 6 color	12½-13	12½-13	12½-13
700 Vis. No. 7 color	14½-15	14½-15	14½-15

CYLINDER STOCKS

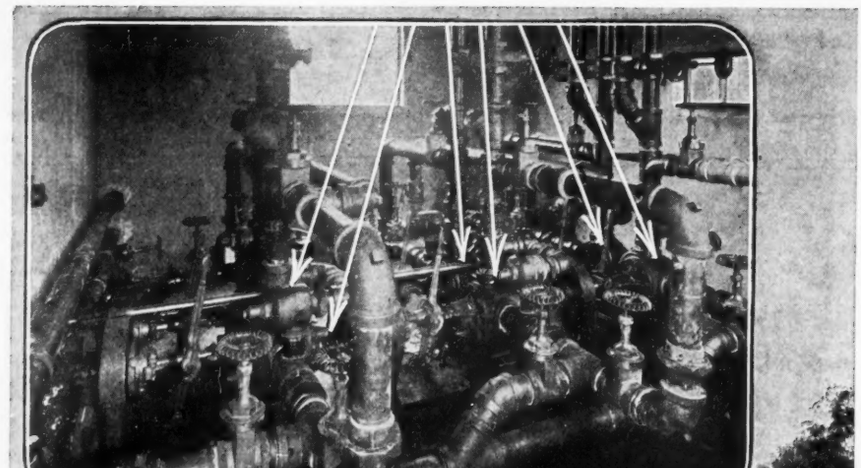
OKLAHOMA			
190-200 Vis. at 210° Bright Stock	31 -35	31 -35	31 -35
150-160 Vis. at 210° Bright Stock	27 -31	27 -31	27 -31
600 E Stock 140-150 Vis —210°	18 -20	18 -20	18 -20
600 Steam Refined Olive Green	8 -11	8 -11	8 -11
600 Steam Refined Dark Green	5½- 7½	5½- 7½	5½- 7½
Black Oil	5 - 6	5 - 6	5 - 6
PENNSYLVANIA (1-inch Immersion Test)			
600 Steam Refined	11¾-12	11½-12	11 -11½
650 Steam Refined	16 -16½	16 -16½	15½-16
600 Flash	20 -21	20 -21	19½-20½
625 Flash	30 -31	30 -31	-30
600 Warren E	20 -20½	20 -20½	20 -20½
600 Oil City E	19 -19½	19 -19½	18½-19½
600 D Filtered	25½-26	25½-26	25½-26
Cold Test Stocks (bright filtered)	37 -37½	37 -37½	37¾-38½
Cold Test Stock (dark filtered)	34½-35	34½-35½	36 -37

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher.)

LONG RESIDUUM STOCKS

PENNSYLVANIA			
60-65 vis. @ 210, 440-450 flash No. 5½ color	-33½	-33	-33
70-75 vis. @ 210, 450-455 flash No. 6 color	-34½	-34	-34
80-85 vis. @ 210, 440-450 flash No. 7 color	-35½	-35	-35
80-85 vis. @ 210, 450-460 flash No. 7-8 color	-36½	-36	-36
80-85 vis. @ 210, 460-465 flash No. 7 color	36½-37½	36 -37	36 -37
95-100 vis. @ 210, 490-495 flash No. 8 color	-38½	-38	-38

**Only one refiner quoting.



TRAHERN

Pumps are shown above handling all the pumping operations of a large bulk plant. The six pumps mounted together form one complete outfit. Write for the new Trahern gasoline and oil pump catalog showing all types of pumps for transfer purposes.

GEO. D. ROPER CORP., Rockford, Illinois

Twelve-fold indorsement

The Shaffer Oil and Refining Company Chicago think so well of the Highland Cab that they are using it on twelve of their trucks. Read the following:

"We are using at the present time in our Chicago territory twelve (12) Cabs, of the closed and open type, and they have been found very satisfactory in all respects."

The Shaffer Oil and Refining Company is only one of the many users of the Highland Cab who are warm in their praise of it. Let us give you a few names, and also tell you more about the money-saving, accident-preventing features of this cab.

The HIGHLAND BODY MFG. Co.
430 Elmwood Place, Cincinnati

HIGHLAND *Cabs*

More Than A Truck Tank

It is Certified Oil Transportation and It Carries ALL the Oil

When you buy Good Trucks, equip them with Real Tanks. A Brown Certified Tank fills the bill. More Exact Fit, Long Life, No Repair Bill, Good Appearance

BROWN SHEET IRON & STEEL CO. **ST. PAUL, MINN.**

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We are interested in your tanks. Send your catalog and prices.

Make of Truck..... Year..... We operate..... (number) Tank Trucks.

Other equipment on which you may send prices.....

Name..... Address.....

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, Kansas, North and South Texas, Louisiana, Arkansas, California and New England

WAX

PENNSYLVANIA	Prices Dec. 20	Prices Dec. 13	Prices Dec. 6
	(Per Pound, New York)		
122-124 White Crude Scale	– 4¾	– 4¾	4¾– 5
124-126 White Crude Scale.	4¾– 4⅞	4¾– 4⅞	5 – 5⅛
OKLAHOMA			
124-126 White Crude Scale.	4¼– 4¾	4¼– 4¾	4⅛– 4¼
CALIFORNIA			
White Crude Scale.....	6 – 7	6 – 7	6 – 7

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil.....	– 6½	6½– 6¾	6½– 6¾
30-34 Fuel Oil.....	6⅜– 6½	6⅜– 6½	– 6½
28-30 Fuel Oil.....	6¼– 6⅜	6¼– 6⅜	6⅜– 6½
OKLAHOMA			
38-40 Straw distillate.....	5¼– 5½	5¼– 5½	5¼– 5½
36-38 Straw distillate.....	5 – 5¼	5 – 5¼	5 – 5¼
32-36 Gas oil cracked (Gal.)	4⅜– 4½	4⅜– 4½	4¼– 4⅜
32-36 uncracked Gas oil,(Gal.)	4⅜– 4⅝	4⅜– 4⅝	4⅜– 4½
28-30 Fuel oil (Bbl.).....	1.55 –1.60	1.50 –1.60	1.50 –1.60
26-28 Fuel oil (Bbl.).....	1.35 –1.45	1.35 –1.45	1.35 –1.45
24-26 Fuel oil (Bbl.).....	1.27½–1.32½	1.27½–1.32½	1.27½–1.32½
22-26 Fuel oil (Bbl.).....	1.22½–1.27½	1.22½–1.27½	1.22½–1.27½
18-22 Fuel oil (Bbl.).....	1.20 –1.25	1.20 –1.25	1.20 –1.25
16-18 Fuel oil (Bbl.).....	–1.20	–1.20	–1.20
14-16 Fuel oil (Bbl.).....	–1.17½	–1.17½	–1.17½
KANSAS*			
38-40 straw distillate.....	5¾– 6	5¾– 6	5¾– 6
36-38 straw distillate.....	5½– 5¾	5½– 5¾	5¾– 5¾
32-36 Gas Oil.....	– 4½	– 4½	– 4½
18-22 Fuel Oil.....	1.25 –1.35	1.25 –1.35	1.25 –1.35
24-26 Fuel Oil.....	1.45 –1.55	1.45 –1.55	1.45 –1.55

*F. O. B. refinery, Kansas destination.

NORTH TEXAS			
38-40 Straw Distillate.....	5 – 5¼	5 – 5¼	5 – 5¼
32-36 Gas Oil (Gal.) cracked	4¼– 4⅜	4¼– 4⅜	4¼– 4⅜
32-36 uncracked gas oil....	– 4⅜	– 4⅜	4¼– 4⅜
24-26 Fuel per (Bbl.).....	1.52½–1.55	1.52½–1.55	1.52½–1.55
GULF COASTAL			
Fuel.....	1.55 –1.60	1.55 –1.60	1.55 –1.60
Gas Oil.....	5¼– 5½	5¼– 5½	5¼– 5½

NORTH LOUISIANA	Prices Dec. 20	Prices Dec. 13	Prices Dec. 6
32-36 Gas oil, cracked (Gal.)	– 4¾	– 4¾	4¾– 4½
32-36 Gas oil, uncracked (Gal.)	4¾– 5	4¾– 5	4½– 4⅝
16-20 Fuel Oil (Bbl.).....	–1.20	–1.20	1.17½–1.20
ARKANSAS			
30-34 Gas oil.....	– 4½	– 4¼	– 4¼
32-36 Gas oil.....	– 4¾	4½– 4¾	4½– 4⅝
Smackover Crude Fuel....	1.25 –1.30	1.25 –1.30	1.25 –1.27½
CALIFORNIA*			
14-18 Fuel Oil (Bbl.).....	80 –1.00	80 –1.00	80 –1.00
14-18 Bunker Oil (Bbl.)...	80 –1.00	80 –1.00	80 –1.00
30-34 Gas Oil (Bbl.).....	1.30 –1.35	1.30 –1.35	1.30 –1.35
27 + Diesel Oil (Bbl.)....	–1.15	–1.15	–1.15

*(San Joaquin Valley, San Fransciso 4c per bbl. more.)

NEW ENGLAND			
	(F. O. B. Boston and Fall River)		
30-32 Gas Oil (Gal.).....	6 – 6⅛	6 – 6⅛	6 – 6⅛
Fuel Oil (Bunker C) Bbl..	–1.84	–1.83	–1.83

PETROLATUMS

PENNSYLVANIA (Cents Per Pound)			
Snow White.....	8½– 9	8½– 9	8½– 9
Lily White.....	7½– 8	7½– 8	7½– 8
Cream White.....	– 6½	– 6½	– 6½
Light Amber.....	– 3½	– 3½	– 3½
Amber.....	3¼– 3½	3¼– 3½	3¼– 3½
Red.....	– 3	– 3	– 3
Green —5.....	1¾– 2	1¾– 2	1¾– 2

PETROLEUM COKE

OKLAHOMA (Per ton in car lots)			
Lump.....	35–36	35–36	35–36
Breeze.....	2–2.25	2–2.25	2–2.25
Still Run.....	3.25–3.50	3.25–3.50	3.25–3.50

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

(Continued from page 97)

been scarce with standing offers of 8¾ cents on Grade C with only odd cars obtainable.

Kerosenes Demand Low

KEROSENES have been in little demand for the past several days, and prices have moved fractionally lower. In Oklahoma 41-43 w. w. kerosene has been moving around 6¼ cents, with some sales both above and below this figure. Several refiners continued to quote up to 6½ cents. The same situation existed in Texas and the other areas of the Mid-Continent. The trade has been watching closely for any large export buying, however, in anticipation of a better kerosene price level should the buying develop.

Colder weather early in the week stimulated distillate sales but not sufficiently to cause price revisions upward. The steadily increasing movement of this commodity is being closely watched by refiners and two or three have indicated that they are so well sold up that they are contemplating advancing prices within the next few days.

Gas oil has remained unchanged during the week. Zero cold test material is still extremely scarce but production of gas oil outstripped shipments for the week ending Dec. 10, according to reports from refiners to this publication.

N. Y. Gasoline Market Is Strengthening

NEW YORK, Dec. 20.—The Atlantic seaboard gasoline market showed a marked improvement last week. With the disappearance of the snow, consumption took a fairly sharp jump, and jobbing demand showed a corresponding improvement. The shortage of ocean tonnage has greatly hampered the movement of California gasoline to the Atlantic seaboard terminals, and very few seaboard distributors with the exception of those owning their own tankers are now in a position to bring gasoline around.

Freight rates are high and it still costs 11¼ cents a gallon to lay California gasoline down here in cargo lots. This gasoline, in turn is usually sold at 11½ cents a gallon, tank cars at the terminals. New York harbor refiners are also asking 11½ cents a gallon for U. S. Motor at the refineries and 12½ cents a gallon in tank cars delivered to the nearby trade. Upstate and Pennsylvania jobbers are following the market more closely than is usual for this time of year. Some of the big refiners in this section report a good inquiry for early spring delivery, but at present nobody appears willing to sell gasoline, for delivery beyond the next 60 days.

Tank wagon prices were easy but no changes were reported, along the seaboard. The Standard Oil Co. of Louisiana reduced the tank wagon price 2 cents a gallon in Louisiana, Arkansas and Tennessee on Wednesday. Gulf refiners were quoting U. S. Motor at 11 cents a gallon terminal and 12 cents a gallon in tank cars delivered to the nearby trade.

Eastern and Central Kentucky Market

ASHLAND and LEXINGTON, Dec. 20.—U. S. Motor and 60-62 gasolines in Eastern Kentucky refinery market are stronger at ¼ cent above last Monday's prices with higher gravities marking time. Kerosene and low gravity fuel oil are unchanged, while 24-26 fuel is ⅛ cent lower. Gas oil and distillate are both up ¼ cent.

Central Kentucky refinery market held its own over previous week. Gasoline, kerosene and gas oil demand was fair. Fuel oils are quiet. Usual end-of-year conditions are prevailing.

Quotations on Dec. 20 are:

	Eastern	Central
58-60 gasoline	12	11¼
60-62 gasoline	12½	
64-66 gasoline	13	
68-70 gasoline	13¾	
41-43 w.w. kerosene ...	7¾	8¼
36-38 distillate	6½	
34-36 gas oil	6¼	6
24-26 fuel oil	4¾	
23-25 fuel oil		5
14-16 fuel oil	4⅝	5

Market Section

Gas Oil And High Test Gasoline Strong in Chicago Market

Staff Special

CHICAGO, Dec. 18.

GAS oil continued to hold the spotlight of activity this week in the Chicago resale market. While the trade disagreed as to the extent of activity there was an advance in prices which took 32-36 straw gas oil to 5 cents.

One Oklahoma refiner reported his business this week had doubled over that of last week, and that by Tuesday he was sold up for the balance of the month. Many orders were received by mail, he said, and in five cases a mail order for several cars was supplemented by a telegram doubling the order. This company was selling dark gas oil at 4¼ cents 10 days ago but had gone to 4¾ cents when business picked up and now is quoting 4⅞ cents. Another refiner said business had been "pretty good" over the week. Other comments placed activity as ranging from steady through good.

Prices moved fractionally higher this week. After 32-36 straw gas opened Monday at 4¾ to 4⅞ cents and 32-36 dark at 4⅜ to 4⅝ cents, straw material Wednesday went to 4⅞ to 5 cents where it closed the week. Dark gas oil price was steady until late in the week when zero cold test oil sold at 4⅝ to 4¾ cents and higher cold tests at 4⅜ to 4½ cents. Buying has been mainly in zero cold test material, and several carload marketers have discontinued the higher cold test line. The more wanted gas oils are still scarce. One refiner has been quoting 5⅛ cents on 32-36 straw zero over the week but reported no sales at that figure.

A severe cold wave, bringing zero temperatures Tuesday and Wednesday and heavy snow in northern states, swept the Standard Oil Co. of Indiana territory during first three days this week. In fact it was so cold that weather took precedence over crime news in headlines of Chicago newspapers. Unusual alternations in temperatures but with no severe cold is predicted for next week, along with occasional rain or snow in the upper Mississippi valley.

High test gasolines were in steady demand over the week; prices were up. The 60-62, 400 e.p. gasoline Monday was 10¼ to 10½ cents, but Wednesday the range narrowed to 10⅜ to 10½ cents, and one refiner reported sales at 10¾ cents. The 64-66, 375 e.p. material price fluctuated slightly after opening at 10⅞ to 11⅛ cents. Tuesday the price went to 11 to 11⅛ cents and the high moved to 11¼ cents the next day. Material was easier in the field Thursday, so Mid-Continent representatives reported to Chicago offices, and the price centered at 11 cents where it remained to the close of the week. Some material, however, was moved late in the week at 11⅛ and 11¼ cents.

Kerosene showed a little more strength this week, one refiner reported, on account of recent export buying. Other sellers, however, reported few sales and a slow market. The price on 41-43 w.w. material was pegged at 6¼ to 6½ cents, while quotations on 42-44 w.w. kerosene were unchanged at 7 to 7¼ cents.

Disagreement was noted in reports of activity of 58-60 U. S. Motor gasoline. One refiner reported sales were better this week; others reported business was holding its own; and one refiner said demand had slumped off. The market remained at 9¼ to 9½ cents. Five refiners in Chicago were quoting 9¾ cents on their U. S. Motor, and four reported scattering sales during the week at this figure.

Distillate and fuels were unchanged. The 38-40 straw distillate ranged from 5⅜ to 5½ cents early in the week but firmed to 5½ cents Thursday, while 36-38 straw distillate remained pegged at 5¼ cents. The 18-22 fuel oil was $1.22½ to $1.27½, 24-26 fuel $1.32½ to $1.35, and 28-30 fuel $1.60 to $1.65. Smackover demand was good, with price unchanged at $1.27½ to $1.30.

Jobbers are making purchases with an eye cocked on yearly inventories and are clearing the decks for next year, the trade reported. This yearly condition, coupled with the holiday season around the corner, has caused the market to slow down this week, it was pointed out. One refiner said he was sold up on gas oil for the balance of the month, and that now most of his business was for January shipment. Another refiner said he will have no kerosene to offer in the spot market until April 1.

PLATT'S
OILGRAM
Petroleum Markets-Every Day

HOW SURE ARE YOU?

If you were to place an order *today* for gasoline, or kerosene, or fuel oil, or lubricating oil—

How sure would you be that you were buying *at the right time* and *at the actual market?*

Did you hear of a tankwagon cut today in another territory, which might indicate a cut coming in yours? Or, did crude change today? Or, did some one put in a big buying order for export which will stiffen the gasoline market ¼ cent or so tomorrow?

A large part of your profits come from *daily accurate knowledge* of market prices and conditions.

PLATT'S OILGRAM brings you this market information from an unbiased source daily. Costs only 30 cents a day—a year for $75, or 3 months for $25. It's your greatest aid to showing PROFIT at the end of the year.

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CHICAGO—360 N. Michigan Ave.
CLEVELAND—875 Caxton Bldg.

Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of New York.—T.w. and s.s. prices gasoline advanced 1 cent, at New England points where prices had been out of line, **Dec. 15.** Boston was included in the advance, and Manchester and Augusta. S.s. price only was advanced at Augusta. Burlington is unchanged.

Standard of Indiana.—T.w. and s.s. prices gasoline reduced 4 cents, Sioux City, Ia., to 14.9 cents and 16.9 cents respectively, including tax, **Dec. 4.**

Standard of Nebraska—Gasoline prices at Omaha have been published in error in the accompanying tank wagon table since Nov. 8. On that date tankwagon price was cut 4 cents and service station 2 cents, to 16.25 cents and 20.25 cents respectively.

Continental Oil.—T.w. and s.s. prices gasoline reduced 1 cent, Pueblo, to 18 cents and 20 cents respectively, including tax, **Dec. 15.**

Standard of Louisiana.—T.w. and s.s. prices gasoline reduced 2 cents generally through territory, excepting New Orleans reduced 1 cent, **Dec. 15.** Gasoline at New Orleans had previously been reduced 1 cent.

Magnolia Petroleum.—T.w. and s.s. prices gasoline reduced 2 cents, Fort Worth, to 15 cents, **Dec. 10.**

Benzol Production Up

By Special Correspondent

NEW YORK, Dec. 20.—Production of motor benzol is still heavy and buyers are operating on a smaller scale. There is a good contract movement on however, which tends to prevent stocks from piling up. Most of the leading marketers are still asking 23 cents a gallon, in tank cars at the ovens, spot delivery and no offerings were reported below this level.

Export buying has been light, although there were rumors current of a large bulk sale to a British concern. Pure and 90 per cent benzol were in much better export demand and prices are a shade steadier than they were at the beginning of the week.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

These Prices in Effect Dec. 20, 1926

S. O. NEW JERSEY TERRITORY

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Atlantic City, N. J.	18	0	18	*	16
Newark, N. J.	18	0	18	20	16
Annapolis, Md.	18	2	20	*	16
Baltimore, Md.	18	2	20	23	16
Cumberland, Md.	18	2	20	23	16
Washington, D. C.	18	2	20	23	16
Danville, Va.	18	4½	22.5	*	16
Norfolk, Va.	18	4½	22.5	25.5	16
Richmond, Va.	18	4½	22.5	25.5	16
Roanoke, Va.	18	4½	22.5	25.5	16
Petersburg, Va.	18	4½	22.5	*	16
Williamsburg, Va.	18	4½	22.5	*	16
Charleston, W. Va.	18	3½	21.5	24.5	16
Clarksburg, W. Va.	18	3½	21.5	24.5	16
Keyser, W. Va.	18	3½	21.5	*	16
Parkersburg, W. Va.	18	3½	21.5	24.5	16
Wheeling, W. Va.	18	3½	21.5	24.5	16
Charlotte, N. C.	19	4	23	26	16
Hickory, N. C.	19	4	23	*	16
High Point, N. C.	19	4	23	*	16
Mt. Airy, N. C.	19	4	23	*	16
Salisbury, N. C.	19	4	23	*	16
Charleston, S. C.	19	5	24	27	16
Columbia, S. C.	19	5	24	27	16

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

*New York City	21	0	21	25	18
Albany, N. Y.	17	0	17	19	18
Buffalo, N. Y.	17	0	17	20	18
Rochester, N. Y.	17	0	17	21	16
Syracuse, N. Y.	17	0	17	19	18
Boston, Mass.	20	0	20	22	18
Augusta, Me.	21	3	24	27	18
Manchester, N. H.	22	2	24	26	18
Burlington, Vt.	20	2	22	24	18

*In steel barrels.

ATLANTIC REFINING

Pittsburgh, Pa.	18	*	18	*23	16
Philadelphia, Pa.	18	*	18	*23	16
Allentown, Pa.	18	*	18	*23	16
Erie, Pa.	18	*	18	*23	16
Scranton, Pa.	18	*	18	*23	16
Altoona, Pa.	18	*	18	*23	16
Dover, Del.	18	2	20	23	16
Wilmington, Del.	18	2	20	23	16
Providence, R. I.	19	1	20	22	18
Boston, Mass.	19	0	19	21	18
Springfield, Mass.	19	0	19	21	18
Worcester, Mass.	19	0	19	21	18
Hartford, Conn.	19	2	21	24	17
New Haven, Conn.	19	2	21	24	18

*2-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	18	5	23	26	17
Louisville, Ky.	17	5	22	25	17
Covington, Ky.	18	5	23	26	17
Clarksdale, Miss.	16	4	20	23	14.5
Gulfport, Miss.	††17.5	4	††21.5	24.5	15
Jackson, Miss.	16	4	20	23	15.5
Natchez, Miss.	15.5	4	19.5	22.5	15
Vicksburg, Miss.	15.5	4	19.5	22.5	15
Birmingham, Ala.	16	2	18	21	17.5
Mobile, Ala.	15	2	17	20	16
Montgomery, Ala.	*17	2	19	22	*18.5
Atlanta, Ga.	†14	3½	18	21	18
Augusta, Ga.	†14	3½	18	21	17
Macon, Ga.	†14	3½	18	21	18
Savannah, Ga.	†14	3½	18	20	16
Jacksonville, Fla.	12	4	16	19	16
Miami, Fla.	14	4	18	21	17.5
Tampa, Fla.	12	4	16	19	16
Pensacola, Fla.	**13	4	**17	20	16.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia has ½ cent per gal. inspection fee on gasoline which is deducted as well as the state gasoline road tax of 3½ cents, to get the actual net tank wagon market to dealer.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include special Sea Wall tax of 2c.

S. O. INDIANA

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Chicago, Ill.	†18	0	†18	20	13.5
Decatur, Ill.	18.2	0	18.2	20.2	14
E. St. Louis, Ill.	17.1	0	17.1	19.35	13.1
Joliet, Ill.	18.4	0	18.4	20.4	14.2
Peoria, Ill.	18.2	0	18.2	20.2	14
Quincy, Ill.	18.2	0	18.2	20.2	13.8
Indianapolis, Ind.	18.2	3	21.2	23.2	14.2
Evansville, Ind.	18	3	21	23	14
South Bend, Ind.	18.4	3	21.4	23.4	14.4
Detroit, Mich.	18.8	2	20.8	22.8	14.7
Grand Rapids, Mich.	18.7	2	20.7	22.7	14.6
Saginaw, Mich.	18.9	2	20.9	22.9	14.8
Green Bay, Wis.	18.6	2	20.6	22.6	14.3
Madison, Wis.	18.3	2	20.3	22.3	14
Milwaukee, Wis.	18.1	2	20.1	22.1	13.8
La Crosse, Wis.	19.2	2	21.2	23.2	14.9
Minneapolis, Minn.	15.2	2	17.2	19.2	15.1
Duluth, Minn.	19.5	2	21.5	23.5	15.1
Mankato, Minn.	19.1	2	21.1	23.1	14.9
Des Moines, Iowa	16	2	18	20	14.4
Davenport, Iowa	18.5	2	20.5	22.5	14.4
Sioux City, Iowa	12.9	2	14.9	16.9	14
Mason City, Ia.	18.5	2	20.5	22.5	14.4
St. Louis, Mo.	*17.6	2	19.6	21.9	13.5
Kansas City, Mo.	††18.9	2	20.9	22.9	12.8
St. Joseph, Mo.	††18.5	2	20.5	22.5	13.4
Fargo, N. D.	20.9	2	22.9	24.9	17.1
Grand Forks, N. D.	20	2	22	24	17.4
Minot, N. D.	20.9	2	22.9	24.9	17.1
Pierre, S. D.	19.5	3	22.5	24.5	15.6
Huron, S. D.	19.5	3	22.5	24.5	15.6
Wichita, Kans.	**16.8	2	18.8	20.8	13.3
Bartlesville, Okla.	16.8	3	19.8	21.8	13.3

†Dumps of 100 or more gallons at 17c per gallon

*Includes city tax of ½c.

††Includes city tax of 1c.

**Dumps of 50 gallons or more in Kansas, 1c discount per gallon.

S. O. NEBRASKA

Crawford, Neb.	19	2	21	*	14.75
Omaha, Neb.	14.25	2	16.25	20.25	14
McCook	19.75	2	21.75	23.75	15.5
Norfolk	17	2	19	21	14.5
North Platte	19.75	2	21.75	23.75	15.25
Scottsbluff	19.25	2	21.25	23.25	14.75

*Standard has no service station here.

CONTINENTAL OIL

Denver, Colo.	18	2	20	21	16
Pueblo, Colo.	16	2	18	20	16
Grand Junction, Colo.	21.5	2	23.5	25.5	19.5
Casper, Wyo.	18	2½	20.5	22.5	14.5
Cheyenne, Wyo.	19	2½	21.5	23.5	16
Butte, Mont.	19	2	21	21	19.5
Helena, Mont.	22	2	24	26	19.5
Salt Lake City, Utah.	20.5	3½	24	26	18
Boise, Ida.	22	3	25	27	20
Twin Falls, Ida.	22	3	25	27	20
Albuquerque, N. M.	20	3	23	26	18.5

S. O. CALIFORNIA

Phoenix, Ariz.	19	3	22	25	21.5
Los Angeles, Cal.	11.5	2	13.5	16.5	15.5
Fresno, Cal.	12.5	2	14.5	17.5	16.5
San Francisco, Cal.	13	2	15	18	15.5
Reno, Nev.	16.5	4	20.5	23.5	19
Portland, Ore.	13	3	16	19	16.5
Seattle, Wash.	13	2	15	18	16.5
Spokane, Wash.	17	2	19	22	20.5
Tacoma, Wash.	13	2	15	18	16.5

S. O. LOUISIANA

Little Rock, Ark.	15	4	19	22	16
Alexandria, La.	15	2	17	20	17
Baton Rouge, La.	14	2	16	19	15.5
Lake Charles, La.	15.5	2	17.5	20.5	17
New Orleans, La.	*14.5	2	16.5	19.5	16
Shreveport, La.	14	2	16	19	16
Lafayette, La.	15	2	17	20	16.5
Bristol, Tenn.	18	3	21	24	17.5
Chattanooga, Tenn.	17.5	3	20.5	23.5	17.5
Knoxville, Tenn.	17.5	3	20.5	23.5	18
Nashville, Tenn.	16	3	19	22	18
Memphis, Tenn.	15	3	18	21	17

*Includes 1c city tax on gasoline and kerosene.

S. O. OHIO

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
All Ohio points	19	2	21	23	17

MAGNOLIA PETROLEUM

Muskogee, Okla.	16	3	19	22	13
Oklahoma City	15	3	18	21	13
Tulsa, Okla.	16	3	19	22	13
Fort Smith, Ark.	17	4	21	24	14.5
Little Rock, Ark.	17	4	21	24	14.5
Texarkana, Ark.	†19	4	††23	††23	15
Dallas, Tex.	†16	1	†17	†17	15
Fort Worth, Tex.	†14	1	†15	†15	15
Houston, Tex.	†18	1	†19	†19	15
San Antonio, Tex.	†18	1	†19	†19	14
El Paso, Tex.	**19	1	**20	**20	16

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city the 4c state tax applies.

†3c per gal. discount to dealers.

**2c per gal. discount to dealers.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.& P Naphtha	Cleaner Naphtha
Chicago	21	23	21
Detroit	22.2	24.7	22.7
Kansas City	21.2	23.2	21.2
Milwaukee	21.2	*25.7	*23.7
Minneapolis	*24.5	*27	*25
St. Louis	20.4	22.9	22.2
New York	...	22	....

*Includes 2c state tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Toronto	24.5	3	27.5	31	24
Ottawa	24.5	3	27.5	31	24
Cochrane	28.5	3	31.5	40	29
Ft. William	24.5	3	27.5	32	26.5

MANITOBA

Winnipeg	27.5	3	30.5	34	26.5

SASKATCHEWAN

Regina	30.5	0	30.5	35	29.5

ALBERTA

Edmonton	29.5	2	31.5	35	28.5
Calgary	27.5	2	29.5	33	26.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	23

QUEBEC

Montreal	24.5	3	27.5	31	24
Quebec City	26.5	3	29.5	33	26
Three Rivers	26.5	3	29.5	33	26

NEW BRUNSWICK

St. John	27.5	3	30.5	35	27
Moncton	27.5	3	30.5	35	27

NOVA SCOTIA

Halifax	27.5	3	30.5	35	27
Sydney	29.5	3	32.5	37	29

PRINCE EDWARD ISLAND

Charlottetown	27.5	3	30.5	34	27

Note: In districts surrounding these points 1c additional is added to city price.

Export Buying Slows Down But Prices Are Well Held

Special Correspondent
NEW YORK, Dec. 20

EXPORT buying slowed down last week, but refiners were firm and no price concessions were announced. A number of cargo inquiries for gasoline and kerosene were in the market early in the week, but these failed to materialize. It was reported that 55,000 barrels of gasoline and kerosene were sold for nearby shipment to the United Kingdom but confirmation was lacking.

Gasoline was steady. The keen interest in late winter and early spring shipments has renewed refiners' confidence. Gas oil was in better export demand. Kerosene was firm but quiet. Bunker oil was steady. Zero cold test lubricants were in much better domestic demand, but foreign buyers appeared reluctant to pay prevailing prices.

Export Gasoline—New York

Export demand for gasoline was disappointing. One of the large Independent refiners was negotiating for the sale of 45,000 barrels of U. S. Motor and prime and water white kerosene for January shipment to the United Kingdom but this did not materialize. Local refiners are still asking 11½ cents a gallon for U. S. Motor gasoline, at the refineries. Stocks of gasoline are fairly large but are in firm hands.

Cased gasoline was in better demand and one of the smaller Independent refiners sold 35,000 cases for prompt shipment to the Levant while another refiner was reported negotiating the sale of 50,000 cases of U. S. Motor and 64-66 gravity 375 e.p. gasoline for January shipment to the Far East.

Export Gasoline—Gulf Ports

A French buyer was reported to have purchased a cargo of 40,000 barrels of U. S. Motor, 64-66 gravity 375-end point gasoline and prime white kerosene for nearby shipment from a leading refiner but this lacked confirmation. However, it was learned that late the preceding week, a leading Philadelphia refiner had sold two bulk cargoes of approximately 50,000 barrels of U. S. Motor; 64-66 gravity 375-end point gasoline and prime and water white kerosene to a French concern. The prices were not divulged.

At the close of last week U. S. Motor was firm at 11 cents; 60-62 gravity 400-end point at 11½ cents; 61-63 gravity 390-end point at 11¾ cents and 64-66 gravity 375-end point at 12¾ cents a gallon. Cased gasoline was in routine demand. A South American buyer purchased 25,000 cases of U. S. Motor and 64-66 gravity 375-end point gasoline for January shipment but prices were withheld. U. S. Motor was quoted at $2.15 a case and 64-66 gravity 375 at $2.35 a case, in cargo lots.

Domestic Gasoline—New York

Domestic demand for gasoline was less spirited last week. Weather conditions have been decidedly unfavorable and jobbing demand has been strictly hand-to-mouth. There is a slightly better inquiry for the distant deliveries. Local refiners are asking 11½ cents a gallon for U. S. Motor at New York harbor refineries and 12½ cents a gallon in tank cars delivered to the trade. Arrivals of California gasoline have been smaller of late owing to the scarcity of tonnage. Tank wagon prices were unchanged.

Domestic Gasoline—Gulf Ports

The condition of the Gulf market was less favorable from the marketers' standpoint. The tank wagon price of gasoline was cut 2 cents a gallon, in Louisiana, Arkansas and Tennessee and this tended to further depress the market. However, refiners were generally asking 11 cents a gallon for U. S. Motor gasoline in bulk at the refineries and 12 cents a gallon in tank cars delivered to nearby destinations. Weather conditions were more favorable than during the preceding week and consumption has been fair for this time of the year.

Export Kerosene—New York

Export demand for kerosene was lighter last week. Some of the refiners reported a more active demand for cased kerosene and barreled oil but no bulk movements were reported. The majority of big European buyers appear to be fairly well covered for the present and are now concentrating their attention upon late winter shipments. No negotiations were reported. Water white was firm at 9½ cents a gallon at the refineries while prime white was quoted a quarter cent under this figure. Cased kerosene was steady but less active than during the preceding week.

Export Kerosene—Gulf Ports

The export demand for kerosene is expected to show a decided improvement during the near future. Last week's market was very dull as far as actual sales were concerned but French, German and United Kingdom buyers are keeping in close touch with the market and are expected to operate on a larger scale shortly. Some refiners described last week's inactivity as "pre-holiday dullness." Water white was firm at 9½ cents a gallon while prime white was well maintained at 8 cents a gallon, in cargo lots. Cased kerosene was steady but dull and prime white was held at $1.75 a case while water white was quoted at $1.85 a case, in cargo lots.

Domestic Kerosene

The demand for kerosene has shown noticeable improvement the past few days. Domestic jobbers are more inclined to purchase ahead. Refiners are doing a good contract business and stocks are slightly depleted at New York harbor terminals. Water white was quoted at 9½ cents a gallon at New York harbor refineries while prime white was quoted at 9¼ cents a gallon. Gulf refiners reported a slightly better domestic demand, and water white was steady at 9½ cents a gallon, refineries.

Waxes—New York

Although the market for white crude scale wax was slightly easier at the start of the week, there was a marked improvement in the domestic demand on Thursday and Friday and the general undertone of the market was much firmer. Export demand for white crude scale wax has improved, and it was learned last week that considerable wax had been sold for export early in the month which has improved the statistical position of the market considerably. Export buyers are keeping in close contact with the white crude scale market.

Exports from Tampico District

Company	October	November
Transcontinental Petroleum Co., (Standard of New Jersey)	1,275,648	1,137,471
Pan American Eastern Oil Co.	1,834,734	2,259,223
Mexican Eagle Oil Co., (El Aguila)	1,158,076	448,359
Cia. Mexicana Holandesa "La Corona"	619,270	422,557
The Texas Co. of Mexico, S. A.	59,978	78,254
Mexican Gulf Oil Co.	134,591	378,620
Sinclair Mexican Companies	272,976	263,244
East Coast Oil Co. of Mexico, S. A., (Southern Pacific)	134,790	113,319
Mexican Oil Products Co.	31,745	.....
Pierce Oil Corp.	65,161	108,387
Mexican Atlas Oil Co.	48,437	49,374
Moctezuma Terminal	31,771	.....
Panuco Boston Oil Co.	98,352	.....
New England Fuel Oil Co.	200,457	41,454
Empire Gas & Fuel Co.	.....	125,018
La Espuela Oil Co.	.....	.....
Totals	5,965,986	5,425,280

Fully refined waxes are moving in a slightly larger way at unchanged prices. United Kingdom buyers are purchasing in lots of from 25 to 50 tons. Semi-refined waxes are steady but dull.

Waxes—Gulf Ports

Export demand for white crude scale wax was more spirited last week and prices were generally steady. For white crude scale wax, 124-126 A.m.p. the asking price was 4½ cents a pound while 124-126 semi-refined wax was quoted at 4⅝ cents a pound. Fully refined waxes were a shade easier and on Saturday were quoted as follows: 123-125 A.m.p. at 5¼ cents; 125-127 A.m.p. at 5⅜ cents; 128-130 A.m.p. at 5½ cents; 133-135 A.m.p. at 5⅞ cents and 135-137 A.m.p. at 6¼ cents a pound. Spain and Brazil, in fact most of the larger Catholic countries, have been buying on a larger scale to meet the increased demand for candles during the coming weeks.

Bunker Oil—New York

Export demand for bunker oil did not show any improvement last week, and most of the activity was confined to filling contract requirements. The market for grade C bunker has been steady. There was a fair spot business transacted and all of the big New York harbor refiners were still quoting $1.75 a barrel f.o.b. and $1.81½ a barrel f.a.s. New York harbor. Diesel oil, however, presented a slightly easier appearance and offerings were heavier at $2.40 a barrel.

Bunker Oil—Gulf Ports

Gulf refiners reported a more spirited domestic demand for bunkering purposes but no export buying developed. The f.o.b. New Orleans price for grade C bunker oil was steady at $1.60 a barrel, while in cargoes the quotation was $1.45 a barrel. At Tampico, grade C bunker oil was quoted at $1.55 a barrel for bunkering purposes and nominally at $1.40 in cargo lots, taxes included. Heavy Panuco crude oil was nominal at $1.25 a barrel f.o.b. Tampico, taxes to be added.

Gas Oil—New York

Domestic demand for gas oil was more spirited last week and prices were well maintained. Local refiners were asking 6¼ cents a gallon for 36-40 gravity in bulk at the refineries and 5¾ cents a gallon for 28-34, same basis. Local stocks are large and the fact that Europeans are still able to lay Polish gas oil down in western European industrial centers at much cheaper prices than they can United States oil, has tended to curtail buying over here.

Gas Oil—Gulf Ports

A London concern purchased a cargo of 56,000 barrels of straw colored gas oil for nearby shipment from a leading Independent refiner. The price lacked confirmation and quoted at 5⅛ to 5¼ cents a gallon. A French buyer was inquiring for 40,000 barrels of translucent gas oil but this failed to materialize. The leading refiners were offering 26-28 translucent gas oil at 5⅛ cents and 32 plus dark oil at 4⅞ cents a gallon. Do-

(Continued on page 111)

Complete Export Markets

New York Export Market

GASOLINE	Dec. 20	Dec. 13
U. S. Motor Tank cars Ref...	11½	–11½
U. S. Motor cases...	27.65	–27.65
California grade U. S. Motor F. O. B. N. Y. Cargoes...	11¼	–11¼
KEROSENE		
43-43-150W.W.Tank cars Ref.	09½	–09½
43-45-150W.W.Cases...	19.65	–19.65
42-44-110S.W.Cases...	19.15	–19.15
GAS OIL		
36-40, Bulk Refinery...	–06¼	–06¼
28-34, Bulk Refinery...	–05¾	–05¾
MEXICAN BUNKER OIL		
Grade C. f. o. b. ref. Bulk...	–1.75	–1.75
Diesel Oil f. o. b. ref. Bulk...	–2.40	–2.40

LUBRICATING OILS

The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.

CYLINDER OILS (Bbls.) 1 inch Immersion Test; All Penna. Products	
Filtered D 600...	28 –28
Filtered E 600...	27 –27
Unfiltered 600 s. r...	18 –18
Unfiltered 650 s. r...	23½ –23½
600 Fash s. r...	24 –24
630 Flash...	34 –34

RED PARAFFIN (Bbls.) (Viscosity at 70)		
300 vis...	No. 5 color	21 –21
250 vis...	No. 5 color	20 –20
High Viscosity...	No. 5 color	25 –25

NEUTRAL OILS (Bbls.) (Viscosity at 70)		
200 vis.at F.Pale.	No. 3 color	–31 –31
180 Pale...	No. 3 color	–29 –29
150 Pale...	No. 3 color	–24½ –24½

BLACK OIL (Bbls.)		
25-30 cold test...	13½	–13½
15 cold test...	14½	–14½

MEDICINAL OILS
(Includes Price of Drums)
(Penna. Stocks)

	Dec. 20	Dec. 13
Domestic 875-885 s. g...	– .85	– .85
Domestic 865-.870 s. g...	.75– .80	.75– .80
Russian 885-.890 s. g. 325-330 vis...	1.00–1.10	1.00–1.10

WAXES
(Penna. Stocks)
(In Cents per Pound, F. A. S. Carload Lots)

WHITE CRUDE SCALE (Shipped in Bbls.)		
122-124 A. m. p...	–4.70	–04¾
124-126 A. m. p...	–04¾	–04¾
MATCH		
105-108 A. m. p...	–05⅝	–05⅝
FULLY REFINED (Shipped in Canvas Bags)		
120-122 A. m. p...	–05⅝	–05¾
123-125 A. m. p. Philadelphia.	–05⅝	–05¾
125-127 A. m. p...	–05⅝	–05¾
128-130 A. m. p...	–05⅞	–05⅞
130-132 A. m. p...	–06	–06⅛
133-135 A. m. p...	–06⅛	–06⅛
135-137 A. m. p...	–06⅛	–06⅛
YELLOW CRUDE SCALE		
124-126 A. m. p...	–4.70	–04⅝

PETROLATUMS
(Penna. Stocks)
Per Pound

Dark Green...	02½	02½
Veterinary...	08	08
Light Amber...	03¾	03¾
Dark Amber...	03½	03½
Cream...	06½	06½
Lily White...	08⅝	08⅝
Snow White...	09¼	09¼

Gulf Export Market

GASOLINE
F. O. B. Seaboard
(Shipments of 20,000 Bbls. and over)

	Dec. 20	Dec 13
U. S. Motor, Bulk...	–11	–.11
60-62 400 e. p. Bulk...	–11½	–.11¾
61-63 390 e. p. Bulk...	–11¾	–.11¾
64-66 375 e. p. Bulk...	–12¾	–.12¾
U. S. Motor, Cases (cargo lots.	2.15	2.15
64-66 Cases (cargo lots)...	2.35	2.35
KEROSENE		
Water White, 43-45 bulk...	09½	–09½
Prime White, 41-43 Bulk...	08	–08
Water White,cases (cargo lots)	1.85	1.85
Prime White,cases (cargo lots)	1.75	1.75
DOMESTIC GAS AND BUNKER OIL		
26-28, gravity, Bulk*...	.05 –05⅛ 05	–05⅛
32 plus, bulk, Dark...	04⅞	–04⅞
Grade C, Bunker oil...	1.60	–1.60
Cargoes...	1.45	–1.45

*Translucent through neck of a 4 oz. bottle.

MEXICAN CRUDE AND BUNKER OILS
F. O. B. Steamer Tampico

Heavy, Panuco crude Taxes to be added...	1.25	–1.25
Grade C, Bunker oil Taxes paid cargoes...	1.40	–1.40
Grade C, Bunker oil, F. O. B. Tampico, For Bunkering Purposes, taxes paid...	1.55	–1.55

SOUTH TEXAS
(Viscosity at 100° F; cold test 0)
(Tanker, F. O. B. Houston)

*LUBRICATING OILS	Dec. 20	Dec. 13
100 Vis. No. 2 Unfiltered Pale.	08¼	08¼
150 Vis. No. 2½ Unfiltered Pale	10¼	10¼
200 Vis. No. 3 Unfiltered Pale.	11	11
300 Vis. No. 3 Unfiltered Pale.	12¼	12¼
500 Vis. No. 3½ Unfiltered Pale	14	14
200 Vis. No. 5½ Red Oil...	10	10
300 Vis. No. 5½ Red Oil...	11	11
500 Vis. No. 6 Red Oil...	12	12
800 Vis. No. 6 Red Oil...	16	16

*These prices are entirely nominal owing to wide fluctuations.

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angles Gravity test on A. P. I. scale)

	Dec. 20	Dec. 13
Gasoline, U. S. Motor— 54°-56°...	8½– 9	08½– 9
Gasoline, U. S. Motor— blends and special cuts...	9¼–10	9¼–10
Gas Oil, 30°—34° per bbl...	$1.30–1.35	1.30–1.35
Diesel Oil, 27°—plus per bbl...	$1.00–1.15	1.00–1.15
Bunker Oil, 14°—18° bbls...	$ .80–1.00	.80–1.00
Fuel Oil, 14°—18° per bbl...	$ .80–1.00	.80–1.00
Kerosene, W. W. 38°—40° per gal., 125-150 flash test...	.05½–06	.05½– .06
Cased Goods		
Gasoline, U. S. Motor...	$2.25	–2.25
Kerosene, W. W. 38°—40° per case, 125-150 flash...	$1.45–1.55	$1.45–1.55

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made from Domestic (including California) and Mexican Crudes.

	Dec. 20	Dec. 13
U. S. Motor Gasoline, Tank Cars Delivered greater N.Y.	–12½	–12½
U. S. Motor Gasoline, Tank Cars Bayonne...	–11½	–11½
U. S. Motor Tank Cars, *Atlantic Seaboard Terminals.	–11½	–11½
Kerosene, 44 150 W. W. Tank Cars de'd greater N.Y.	–10½	–10½
Grade C Bunker f.o.b.N.Y.Ref	–1.75	–1.75
Diesel Oil f.o.b.Refinery...	2.40	2.40
Gas Oil, 36-40, Bulk Refinery..	–06¼	–06¼
Gas Oil, 28-34, Bulk Refinery..	–05¾	–05¾

*New York, Philadelphia, Portsmouth, Va., Charleston, S. C.

Crude Oil Prices, as Posted by Major

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.15
Bradford District Oil in National Transit Lines (Bradford District)	3.15
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.05
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.05
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.00
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.80
Keister Grade in National Transit Lines (Butler Co.)	1.80
Cabell Grade in Eureka Pipe Lines (West Virginia)	2.10
Corning Grade in Buckeye Pipe Lines (Ohio)	2.25
Corning, O. heavy grade	2.15
*Somerset Medium in Cumberland Pipe Lines (Kentucky)	2.20
*Somerset Light in Cumberland Pipe Lines (Kentucky)	2.35
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

*Somerset oil run prior to Oct. 1, 1922, takes price of 6 cents lower than above quotations.

(Posted by Stoll Oil Refining Co.)

Oil City Ky. oil in Stoll lines	$2.35

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$2.25	Plymouth	$1.68
Lima	2.21	WesternKentucky	1.88
Waterloo	1.85	*Canadian Petrolia	2.61
Indiana	1.98	*Oil Springs	2.68
Princeton	2.10	*Posted by Imperial Oil Ltd.	
Illinois	2.10		

OKLAHOMA, KANSAS And NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)

Effective Nov 17, 1926.

28-28.9	$1.50	34-34.9	$1.80
29-29.9	1.55	35-35.9	1.85
30-30.9	1.60	36-36.9	1.90
31-31.9	1.65	37-37.9	1.95
32-32.9	1.70	38-38.9	2.00
33-33.9	1.75	39-39.9	2.05
40-40.9	$2.10	47-47.9	$2.45
41-41.9	2.15	48-48.9	2.50
42-42.9	2.20	49-49.9	2.55
43-43.9	2.25	50-50.9	2.60
44-44.9	2.30	51-51.9	2.65
45-45.9	2.35	52 and above	2.70
46-46.9	2.40		

Above schedule met by Sinclair and Gulf on Nov. 17.

Humble Oil & Refining Co. Prices
(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

On Nov. 1, Humble first posted the price schedule adopted by Prairie on Nov. 17, except that Humble is paying 5c less for each degree of gravity on oil below 28°.

Mirando, Tex	$1.25

The Texas Co. posted same gravity and price schedule in Oklahoma, North, North Central and Central Texas on Nov. 5 as Humble, excepting it is paying $1.40 for all oil below 28° gravity in Texas fields.

Magnolia Petroleum Co.
(In Oklahoma, Kansas and North and East Central Texas)

Same grades and prices as posted by Prairie excepting that Magnolia is paying $1.30 for all oil below 28° gravity, effective Nov. 2.

Corsicana heavy	$1.25
Iatan Tex	1.50

Carter Oil Co.
(Oklahoma and Kansas)

On Nov. 2, Carter posted same gravity and price schedule as Prairie is now maintaining.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Hutchinson, and Carson Counties $1.25

Gray County:		Wheeler County:	
28-28.9	$1.00	28-28.9	$ .90
29-29.9	1.05	29-29.9	.95
30-30.9	1.10	30-30.9	1.00
31-31.9	1.15	31-31.9	1.05
32-32.9	1.20	32-32.9	1.10
33-33.9	1.25	33-33.9	1.15
34-34.9	1.30	34-34.9	1.20
35-35.9	1.35	35-35.9	1.25
36-36.9	1.40	36-36.9	1.30
37-37.9	1.45	37-37.9	1.35
38-38.9	1.50	38-38.9	1.40
39-39.9	1.55	39-39.9	1.45
40-40.9	1.60	40-40.9	1.50
41-41.9	1.65	41-41.9	1.55
42-42.9	1.70	42-42.9	1.60
43-43.9	1.75	43-43.9	1.65
44 and above	1.80	44 and above	1.70

Magnolia Petroleum Co. posted flat price of $1.25 for all Panhandle Crude on Sept. 22, and Kay County Gas Co. on Oct. 4.

WEST TEXAS

(Crane, Upton and Crockett Counties)
Humble Oil & Refg. and Kay County Gas Co.

Below 26	$ .80	31-31.9	$1.10
26-26.9	.85	32-32.9	1.15
27-27.9	.90	33-33.9	1.20
28-28.9	.95	34-34.9	1.25
29-29.9	1.00	35-35.9	1.30
30-30.9	1.05	36 and above	1.35

NORTH LOUISIANA—ARKANSAS FIELDS

***Prices of Standard Oil Co. of Louisiana**
Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto
Effective Nov. 4

Below 28	$1.40	40-40.9	$2.10
28-28.9	1.50	41-41.9	2.15
29-29.9	1.55	42-42.9	2.20
30-30.9	1.60	43-43.9	2.25
31-31.9	1.65	44-44.9	2.30
32-32.9	1.70	45-45.9	2.35
33-33.9	1.75	46-46.9	2.40
34-34.9	1.80	47-47.9	2.45
35-35.9	1.85	48-48.9	2.50
36-36.9	1.90	49-49.9	2.55
37-37.9	1.95	50-50.9	2.60
38-38.9	2.00	51-51.9	2.65
39-39.9	2.05	52-and above	2.70
Smackover, below 24			$1.10
" 24-24.9			1.35
" 25-25.9			1.40
" 26-26.9			1.45
" 27 and above			1.50
Bellevue			1.40
Cotton Valley			1.20
**Urania, La			1.10
†Calion (East El Dorado)			.95

*Gulf and La. Oil Refg. Corp. met S. O. La. prices on Nov. 4 and The Texas Co. and Magnolia Pet met on Nov. 5.

**Posted by Louisiana Oil Refining Corp.

†Posted by Gulf

STEPHENS, ARKANSAS

Posted by Atlantic Oil Producing Co. and Louisiana Oil Refining Corp.

Below 28	$1.30	29-29.9	1.45
28-28.9	1.40	30 and above	1.50

GULF COASTAL and SPINDLETOP

Posted by Humble Oil & Refining Co.

Grades A	$1.40	29-29.9	$1.65
Grades B:		30-30.9	1.70
Below 25	1.40	31-31.9	1.75
25-25.9	1.45	32-32.9	1.80
26-26.9	1.50	33-33.9	1.85
27-27.9	1.55	34-34.9	1.90
28-28.9	1.60	35 and above	1.95

Fields classified as A and B are Goose Creek, Hull, Liberty, West Columbia. Orange, Boling and Pierce Junction. All other fields are Grades A only.

Magnolia Petroleum is paying same prices in Spindletop as Humble, except that its top grade is 31-31.9 at $1.75, effective Nov. 16.

Retail Market Conditions Better Now Than Last Winter

Staff Special

CHICAGO, Dec. 18

GASOLINE tankwagon price structure in middle western states is completing a relatively quiet year as compared with 1925, and barring general reductions or local changes during the remainder of the current year, the market will show a marked improvement in stability.

An analysis of the N. P. N. Oil Price Handbook for 1925 and the records being compiled for the 1926 edition show seven general changes in the Standard Oil Co. of Indiana territory during 1925 as against three in 1926. Last year there were four 1-cent and one 2-cent advances as against one 1-cent and one 2-cent reductions while in 1926 there have been two 1-cent advances and one 1-cent reduction.

In 1925 the advances reached a climax with the 1-cent boost July 14 and the first reduction followed on Aug. 25 of 2 cents with a 1-cent reduction Sept. 1. During the current year there were 1-cent advances effective April 29 and May 17, with the only one reduction, 1 cent on Oct. 26.

The last four months of the year reflect another aspect of the strength. Of the 32 key cities there were nine points where irregular prices were in effect last year; this year five cities had been affected by local changes and one of these, St. Joseph, Mo., was up ½ cent effective Oct. 13 to cover a city tax of that amount. Cities having irregular prices in the last four months of 1925 were Decatur and Peoria, Ill.; Evansville, Ind.; Minneapolis and Duluth, Minn.; Des Moines, Ia.; Kansas City, Mo.; Huron, S. D.; and Wichita, Kan. Those cities affected this year were Sioux City, Minneapolis, Des Moines, and Grand Forks, N. D.

As a result of local conditions last year, the gasoline tankwagon price fell below that of kerosene in four cities. The tankwagon prices below do not include state taxes. At Decatur, Ill. when the week of Sept. 28 closed gasoline was 11 cents with kerosene 11.5 cents. This condition existed for 13 weeks until gasoline was advanced 5.2 cents effective Dec. 24. When gasoline was cut 1 cent in Peoria, Ill., effective Sept. 8 the tankwagon price went to 11 cents and kerosene was 11.5 cents. On Oct. 5, and through the balance of the year, gasoline at Peoria declined ½ cent, making the spread 1 cent in favor of kerosene. At Wichita, Kan., the 3-cent gasoline cut of Sept. 2 brought gasoline to 8.8 cents while kerosene was 10.8 cents, and this ratio prevailed until Dec. 14 when both markets were 10.8 cents and two days later gasoline went into the lead with a 5-cent advance. The fourth city where kerosene price was higher was Huron, S. D., where for seven weeks kerosene was 1/10 cent higher.

Purchasers, in All Fields (in Effect, Dec. 20, 1926)

GULF COASTAL and SPINDLETOP
Prices of The Texas Co.

Grades A	$1.40	*Grades B	$1.40
‡Grades B (light crude):			
35-35.9	$1.95	38-38.9	$2.10
36-36.9	2.00	39-39.9	2.15
37-37.9	2.05	40 and above	2.20

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS
Prices of Ohio Oil Co. and Midwest Refining Co

‡Salt Creek	29-29.9	$1.55
" "	30-30.9	1.60
" "	31-31.9	1.65
" "	32-32.9	1.70
" "	33-33.9	1.75
" "	34-34.9	1.80
" "	35-35.9	1.85
" "	36-36.9	1.90
" "	37 and above	1.95
Elk Basin		2.00
Grass Creek light		2.00
Big Muddy		$1.85
Lance Creek		2.00
Rock Creek		1.85
Mule Creek		1.45
Rex Lake		1.25
‡Osage		2.00
‡Cat Creek, Mont.		2.00
Sunburst, Mont.		1.35
‡Hogback, N. Mex.		2.48
Artesia, N. Mex.		1.65

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light, and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA
Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Huntington Beach	Ingle-wood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Monte-bello	Coyote Hills	Santa Fe Springs	Midway Sunset Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	.....	$ .85	$ .85	.....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.87	.87	.85	.75	.87	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
16-16.9	.90	.90	.85	.75	.90	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
17-17.9	.94	.94	.85	.75	.94	.....	.85	.85	.....	.75	.75	.75	.75	.85	.85
18-18.9	.98	.98	.86	.75	.98	.....	.86	.86	.....	.75	.75	.75	.75	.85	.85
19-19.9	1.04	1.04	.87	.75	1.04	.....	.87	.87	.....	.75	.75	.75	.75	.85	.85
20-20.9	1.10	1.10	.89	.....	1.10	.....	.89	.90	.....	.82	.82	.79	.78	.90	.90
21-21.9	1.16	1.16	.91	.....	1.16	.....	.91	.98	.....	.90	.90	.86	.81	.97	.97
22-22.9	1.22	1.22	.94	.....	1.22	.....	.94	1.06	.....	1.00	1.00	.93	.85	1.04	1.04
23-23.9	1.28	1.28	.....	.....	1.28	.....	.97	1.14	.....	1.11	1.11	1.00	.89	1.11	1.11
24-24.9	1.34	1.34	.....	.....	1.34	$1.34	1.01	1.22	$1.02	1.22	1.22	1.07	.93	1.18	1.18
25-25.9	1.40	1.40	.....	.....	1.40	1.40	1.05	1.30	1.08	1.33	1.33	1.14	.97	1.25	1.25
26-26.9	1.46	1.46	.....	.....	1.46	1.46	1.09	1.38	1.16	1.44	1.44	1.21	1.01	1.32	1.32
27-27.9	1.52	1.52	.....	.....	1.52	1.52	1.13	1.46	1.24	1.55	1.55	1.28	1.05	1.39	1.39
28-28.9	1.58	1.58	.....	.....	1.58	1.58	1.17	1.54	1.32	1.66	1.66	1.35	.....	1.46	1.46
29-29.9	1.64	.....	.....	.....	1.64	1.64	1.21	1.62	1.40	1.77	1.77	1.42	.....	1.53	1.53
30-30.9	1.70	.....	.....	.....	.1.70	1.70	1.25	1.70	1.48	1.88	1.88	1.49	.....	1.60	1.60
31-31.9	1.76	.....	.....	.....	.....	1.76	.....	.....	1.60	1.99	1.99	1.56	.....	.....	1.67
32-32.9	1.84	.....	.....	.....	.....	1.84	.....	.....	1.72	2.10	2.10	1.63	.....	.....	1.73
33-33.9	.....	.....	.....	.....	.....	1.92	.....	.....	1.84	2.21	2.21	1.70	.....	.....	1.79
34-34.9	.....	.....	.....	.....	.....	2.00	.....	.....	1.96	.....	2.32	1.77	.....	.....	1.85
35-35.9	.....	.....	.....	.....	.....	2.08	.....	.....	2.08	.....	.....	1.84	.....	.....	1.92
36-36.9	.....	.....	.....	.....	.....	2.16	.....	.....	2.16	.....	.....	.....	.....	.....	.....
37-37.9	.....	.....	.....	.....	.....	2.24	.....	.....	2.24	.....	.....	.....	.....	.....	.....
38-38.9	.....	.....	.....	.....	.....	2.34	.....	.....	2.34	.....	.....	.....	.....	.....	.....
39-39.9	.....	.....	.....	.....	.....	2.44	.....	.....	2.44	.....	.....	.....	.....	.....	.....
40-40.9	.....	.....	.....	.....	.....	2.54	.....	.....	.....	.....	.....	.....	.....	.....	.....
41-41.9	.....	.....	.....	.....	.....	2.64	.....	.....	.....	.....	.....	.....	.....	.....	.....
42-42.9	.....	.....	.....	.....	.....	2.74	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

	Dec. 20	Dec. 13
Soda Ash light 58¼ bags.cwt.	$1.38	$1.38
Silicate of Soda 60 deg. drums.....cwt.	-$1.65	-$1.65
Sal Soda wks.....90-	1.10	.90- 1.10
Caustic Soda 70¼ solid..cwt.	- 3.05	3.05-3.10
Chloride of Lime.....cwt. works.....	- 2.00	- 2.00
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	10.50-11.00	10.50-11.00
Liquid Chlorine tank cars works.....lb.	- .04	- .04

Compounders' Supplies (Open Market)

Vegetable Oils—		
Linseed carloads spot.....lb.	10.7	10.7
December.....	10.7	10.7
Tanks, spot.....	10.1	10.1
*Soya Bean spot, Bbls....lb.	nominal	12½
Castor Oil—		
No. 1 Carlots, Bbls.....	-.13	-.13
No. 3 Carlots, Bbls.....	-.12¾	-.12¾
Animal Oils—		
English Degras.....	.05½	-.05½
Domestic Degras, bbls., carloads.....lb.	-.04¾	-.04¾
*Horse.....lb.	-.08¼	-.08¼
Oleic Acid—		
Dist. Bbls.....lb.	.09½-.10	09½-.10
Saponified Bbls.....lb.	.09¾-.10¼	.09¾-.10½
Lard Oils—		
Prime		
Winter Strained. to 1¾ ffa.	40/45c.t.lb. .15¾	.15¾
Extra		
Winter Strained. 2 to 4½ ffa.	40-45c.t.lb. .12¾	.12¾
Extra..... 4 to 5 ffa.	40-45c.t.lb. .12¼	.12¼
Extra No.1. 7 to 10 ffa.	40-50c.t.lb. .10¼	.10¼
No. 1.....15 to 18 ffa.	40-45c.t.lb. .10	.10
No. 2.....22 to 25 ffa.	40-45c.t.lb. .09¾	.09¾
Prime Edible Tallow under 1¾ ffa. 40-45c.t.N.Y.....lb	-.08½	-.08½
Tallow acidless.....lb.	-.10¼	-.10¼
Lard Stearine.....lb.	-.16½	-.16½
Oleo Stearine.....lb.	-.10	-.10
Neatsfoot Oil—		
Pure.....bbls.-lb.	.13¾	.13¾
Extra.....do lb.	.10¼	.10¼
No. 1.....bbls.-lb.	.10	.10
Cold pressed.....lb.	.17¾	.17¾
Fish Oils—		
Menhaden Oil		
Light pressed.....gal.	-.62	-.62
White.....gal.	-.67	-.67
Yellow bleached.....gal.	-.65	-.65
*Herring tank cars coast.....gal.	-.47	-.47
Whale, extra winter bleached.....gal.	-.82	-.82
Seal.....gal.		nominal
Naval Stores—		
Turpentine, N. Y.....gal.	-.87¼	-.88
Turpentine†.....gal.	-.81¼	-.80¾
Rosin, B. N. Y.....bbl.	12.65	12.35
Rosin, F. N. Y.....bbl.	12.70	12.55
Rosin, B†.....bbl.	10.80	10.80
Rosin, F†.....bbl.	11.05	10.90
Rosin Oil 1st run.....gal.	.66	.64
Rosin Oil 2nd run.....gal.	.69	.67
Pine Tar—		
Kiln Burnt.....bbl.	16.00	16.00
Retrt.....bbl.	16.00	16.00

†Savannah, Ga. market.
*Nominal.

Alcohol—Denatured—		
Formula 5		
Bbls.....gal.	-40	-40
Drums.....gal.	-35	-35

OIL STOCKS AND FINANCES

National Petroleum News

Standard Oil Cash Dividends Make New Record at $62,621,000

Staff Special

CLEVELAND, Dec. 18

CASH dividends paid by companies of the Standard Oil group establish a record in the last quarter of 1926 with a total of $62,621,548, a sum more than six times the payment in the first quarter of 1912, the first quarter after the dissolution decree went into effect. Total cash payments for this year amount to $200,263,594, or approximately 30 per cent more than 1925 dividends the previous high total.

Dividends this quarter are almost $7,000,000 more than the payments in the first quarter of 1913 when the Standard Oil Co. of New Jersey distributed a special dividend of $39,335,352 from repayment of loans to former subsidiaries. The quarterly payment also exceeds by more than $10,000,000 the entire payments for 1912, larger than the 1915 total and almost as large as the 1914 total.

In addition to cash payments Standard Oil Co. of New York distributed $72,000,000 worth of stock as a 25 per cent stock dividend; Standard Oil Co. of Nebraska gave $1,500,000, and Humble Oil & Refining Co. and Standard Oil Co. of New Jersey gave their stockholders rights to buy at par stock amounting to 66 2/3 and 16 2/3 per cent, respectively, of their holdings.

"The large increase in cash dividend payments is partly due to the increase in the capital stocks of Standard Oil Co. of New York and Standard Oil Co. of California because of acquisitions made, but in a large measure it is also due to increased rates," explains Carl H. Pforzheimer & Co., New York, specialists in Standard Oil stocks.

Standard of Indiana by paying $1.00 a share extra in addition to the regular dividend of $2.50 added $9,163,000 to the total dividends for the year. Standard of New Jersey's extra dividend of 12½c a share added $2,573,529. Standard of New York in addition to paying the stock dividend increased the share capitalization to 16,760,931 shares by taking over General Petroleum Company. The dividend rate was increased from $1.40 to $1.60 per annum and the estimated dividends of this company for the year are $23,290,828 against $14,345,487 in 1925. Standard Oil Company of California's dividends were also larger through taking over Pacific Oil Company and the declaration of a 50c extra cash dividend in the final quarter. The company disbursed $29,963,085 against $18,927,028 in 1925. Southern Pipe Line paid a partial liquidation dividend of $40 a share in June which added $4,000,000 to the total. In addition to the rights, Humble Oil & Refining Company increased quarterly payments on the new capital to 30c regular and 20c a share extra, thus increasing its quarterly payment to stockholders from $525,000 to $1,458,333. This company increased its dividend disbursement $3,300,000 over 1925.

"Imperial Oil paid $1.25 a share against $1.00 last year, thus adding $1,620,500 to the year's total. International Petroleum Company paid three 25c dividends during 1926 paying out $5,338,605 against $3,559,070 or 50c a share in 1925. Ohio Oil paid $2,400,000 more by increasing the payment to $3.50 from $2.50 in 1925. Prairie Oil resumed dividends in May at the rate of 50c a share quarterly. The company disbursed $4,860,000 in the last three quarters of the year. Union Tank Car Company while paying the same rate of dividends per share as in 1925 paid the dividend on a capital increased by a 25% stock dividend in the latter part of 1925. The same company has just declared another 25% stock dividend payable in the latter part of this year.

"Payments for the fourth quarter of the year exceed the third quarter by $16,000,000 and were $20,000,000 greater than the fourth quarter of last year. Extra dividends by Standard Oil of California, Standard Oil of New Jersey, Vacuum Oil Co., International Petroleum Co., Imperial Oil, Ltd., South Penn Oil Co., Chesebrough Mfg. Co. and Standard Oil of Nebraska and semi-annual payments increased the amount for the final quarter."

Quarterly dividend payments since the dissolution are shown in the accompanying table. In the 15 years since the dissolution, the companies have paid out the sum of $1,695,236,768 in cash in addition to which there have been numerous stock dividends and subscription privileges to buy stock below market prices. Half of the amount was paid out in the first nine years following the dissolution and the remaining half in the last six years.

Cities Service Calls Debentures

NEW YORK, Dec. 18.—Cities Service Co. has called for redemption on Dec. 29 $2,000,000 principal amount of its Series D 7 per cent convertible gold debentures, due Jan. 1, 1966. The redemption price is 102 and accrued interest. Debentures called are to be surrendered to the New York Trust Co., trustees.

Mammoth Stock Sells Low

NEW YORK, Dec. 18.—A block of 113,248 shares of Mammoth Oil Co. stock was auctioned this week for $3,000 by Adrian H. Muller's Sons. The stock was put on the market after the leasing of Teapot Dome to Mammoth at $42 a share. The auction price was 2.6 cents a share.

Shaffer to Clear Back Dividends

CHICAGO, Dec. 18.—Shaffer Oil & Refining Co. has cleared up preferred stock dividend accumulations by declaring 19¼ per cent on the preferred payable Jan. 25 to stock of Dec. 31 record. A regular quarterly dividend of 1¾ per cent also was declared with the same payment and record dates. An initial dividend of $7 a share on the common stock was paid Jan. 25 to stock of Dec. 31 record also.

Standard Oil Cash Dividends Since Dissolution

	First Quar.	Second Quar.	Third Quar.	Fourth Quar.	Totals
1926	$40,580,317	$50,618,451	$46,427,278	$62,621,548	$200,263,594
1925	34,355,618	41,905,728	35,140,584	42,104,169	153,506,099
1924	34,975,867	40,699,592	34,712,810	40,000,286	150,388,555
1923	33,499,988	36,311,251	31,066,251	37,545,805	138,423,295
1922	28,206,068	29,205,349	28,628,099	*43,000,349	129,039,865
1921	28,987,611	29,131,727	27,609,227	29,586,727	115,294,292
1920	26,796,606	27,313,396	29,804,557	31,861,824	115,776,793
1919	26,759,502	26,397,119	24,418,169	28,326,687	105,901,477
1918	26,483,747	26,759,002	26,204,915	24,035,252	103,480,916
1917	23,097,668	26,428,252	22,968,751	27,463,252	99,957,923
1916	22,179,085	†30,406,454	21,980,168	24,062,168	98,627,875
1915	15,241,966	14,368,636	15,891,966	16,898,636	62,401,204
1914	17,904,636	16,426,306	14,430,626	14,931,306	62,692,884
1913	**55,652,423	15,552,096	15,213,746	21,377,096	107,795,361
1912	10,220,396	11,983,746	13,190,396	16,392,096	51,686,634

* Includes aggregate extra disbursements of $11,600,000 by four Eastern Pipe Line Companies.

† Includes $6,613,786 disbursed by National Transit Co. in adjustment of capitalization.

**Includes $39,335,352 disbursed by Standard Oil Co. of New Jersey from repayment of loans to former subsidiaries.

Transactions In Oil Shares on New York Stock Exchange

1925 High	1925 Low	1926 High	1926 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Dec. 18 Sales	First	High	Low	Last	Ch'g
.....	.....	32⅞	24¼	(sh)	814,800	N.P.	Amerada Corp.	50cQ	Oct. 30, 26	17,400	31	32¾	30⅝	32¼	+1⅝
79¾	48	74	39⅞	(sh)	200,000	N.P.	American Republics	.....	.....	700	46⅞	47½	46⅜	47	+ ½
47¾	32	59½	44¾	$	56,000,000	$ 25	Associated Oil	50cQ	Dec. 25, 26	.....	.....	.....	.....	.....	.....
117½	95½	128⅜	97		50,000,000	100	Atlantic Refining	.....	June 16, 24	36,200	110	117½	109¼	114¼	+4
117¾	113½	120	115⅛		20,000,000	100	do pfd	$1¾Q	Nov. 1, 26	300	116¼	116¼	116¼	116¼	— ¼
83½	18¾	33⅛	23¾		25,000,000	25	Barnsdall Corp. A	50cQ	Oct. 1, 26	16,100	28	28½	27¼	28¼	+ ¾
30	16	20⅛	22½		3,713,275	25	do B	50cQ	Oct. 1, 26	1,800	25¾	26¼	25¾	25¾	+ ¼
34⅜	23⅞	38⅛	29¾	$	47,594,950	$ 25	California Petroleum	50cQ	Dec. 1, 26	14,300	31¼	31½	30¾	31½	+ ¼
70	42½	94½	50		23,631,200	100	General Asphalt	.....	.....	42,300	86¾	87⅞	83¼	84½	—2⅛
109	86½	140⅛	94⅞		7,354,000	100	do pfd	$1¼Q	Dec. 1, 26	600	131½	131¾	131½	131¾	+1¾
85	59	72	50¼		25,000,000	100	Houston Oil	.....	.....	8,100	58⅜	61⅝	58⅜	61⅝	+3⅛
41¾	13½	34	19⅝	(sh)	500,000	N.P.	Independent Oil & Gas	25cQ	Oct. 18, 26	189,200	29½	33⅜	29½	31⅝	+2
14¼	5½	13¾	7¾	$	3,288,960	$ 10	Indian Refining	.....	Dec. 15, 20	2,500	8½	8⅞	8⅜	8½	— ¼
12⅝	6	12½	7½		4,546,490	10	do ctfs	.....	.....	1,500	8	8¼	7¾	7⅞	0
110	77	104	90		2,296,400	100	do pfd	.....	Dec. 15, 21	.....	.....	.....	.....	.....	.....
1½	¼	¾	¼		1,644,760	10	Kansas & Gulf	.....	.....	300	¼	¼	¼	¼	0
.....	.....	24½	19⅛	(sh)	4,000,000	N.P.	Lago Oil & Transport	.....	.....	23,000	20⅞	22⅛	20⅞	21⅞	+1⅝
28¾	13⅝	19⅞	12	(sh)	1,134,288	N.P.	Louisiana Oil Refining	.....	.....	66,300	14⅞	17¾	14¾	16½	+1¾
.....	.....	97	93	$	4,000,000	$100	do pfd	$1⅝Q	Nov. 15, 26	1,200	96	98	96	98	+5
35½	20⅜	28⅞	16½	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	2,400	20½	21	19⅞	20	—1
60½	32⅝	63⅜	49¼	(sh)	2,319,763	N.P.	Marland Oil Co	$1Q	Dec. 31, 26	108,600	55¾	57	x55¼	56⅝	+2⅜
₹50	225	.....	.....		45,942,800	$100	Mexican Petroleum	$3Q	Oct. 20, 26	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....		12,000,000	100	do pfd	$2Q	Oct. 20, 26	.....	.....	.....	.....	.....	.....
22½	29	13¾	6	(sh)	945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	2,600	8	8¼	7¾	8	0
38	25¾	37	27½	(sh)	1,357,800	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 23	95,400	32⅜	35⅜	31⅞	35	+2⅝
94¼	83	103	90	$	6,718,000	$100	do pfd	$1¾Q	Dec. 1, 26	400	102	*103	102	102¼	+ ¼
8¼	⅝	2½	¾		25,415,540	10	Middle States	.....	July 1, 23	98,300	⅞	1⅞	¾	1¾	+1
1½	1½	1¼	½		4,384,680	....	do ctfs	.....	.....	9,800	½	*1¼	½	1¼	+ ¾
78½	51⅝	83¾	1	(sh)	3,500,000	N.P.	Pacific Oil	.....	Jan. 20, 26	63,900	1¾	2¼	1⅝	1¾	— ¾
83⅞	59½	76½	56⅛	$	48,307,400	$ 50	Pan American P. & T	$1.50Q	Oct. 20, 26	3,700	63¼	66⅝	63¼	65⅝	+2⅜
84½	60⅛	78⅜	56⅞		91,246,000	50	do B	$1.50Q	Oct. 20, 26	123,200	63	66⅞	63	66¼	+3⅜
49¾	37¼	46	30	(sh)	400,000	N.P.	Pan American Western B	50cQ	Oct. 30, 26	35,300	34¼	40¼	34¼	37½	+3½
6¼	2¼	3⅜	4½	(sh)	198,770	N.P.	Panhandle P. & R	.....	.....	5,500	15⅞	16	15	16	+ ¼
60½	37	99⅜	51	$	2,935,200	$100	do pfd	.....	July 2, 23	.....	.....	.....	.....	.....	.....
47⅞	36¼	57⅜	40	(sh)	2,406,736	N.P.	Phillips Petroleum	75cQ	Oct. 1, 26	174,100	57	*57⅜	x55	55½	— ¼
8½	1¼	1⅞	½	$	29,622,925	$ 25	Pierce Oil Corp	.....	.....	9,400	½	¾	½	¾	+ ⅛
40	20¼	27⅜	11⅜		15,000,000	100	do pfd	.....	Feb. 1, 22	1,800	17	18½	17	17½	+1½
8¼	4½	7	2½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	5,100	3	3⅜	3	3¼	+ ¼
32⅝	12½	20⅞	11	$	11,467,850	$ 50	Producers & Refiners	.....	Sept. 15, 23	3,500	18	19½	18	18⅜	+ ⅜
47⅜	27	41¼	30¾		2,845,350	50	do pfd	.....	May 1, 25	300	39	39	39	39	0
38¾	25⅜	31	25¼		75,959,250	25	Pure Oil Co	37½cQ	Dec 1, 26	32,200	27	28¼	26⅞	27⅜	+ ⅜
108½	103	112¾	106		13,000,000	100	do 8% pfd	$2Q	Oct. 1, 26	100	110⅝	110⅝	110⅛	110⅛	+1⅛
57⅜	48¼	57⅜	47⅜	(sh)	658,082	13.40	Royal Dutch, N. Y. shares	$1.739	Aug. 2, 26	2,300	49⅞	50¾	49¾	50⅝	+ ⅜
49	39½	48⅝	40¾	(sh)	87,685	£2	Shell Transport & T	$1.21	July 24, 26	1,100	43¼	43⅞	43¼	43⅜	+ ¾
28¾	21⅝	30⅞	24	(sh)	10,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 26	19,000	29½	29¾	29⅛	29⅜	+ ⅛
106½	99½	114	103	$	18,350,400	$100	do pfd	$1½Q	Nov. 15, 26	400	108¾	109	108¾	109	0
28½	17¾	28⅝	15⅜		7,208,080	10	Simms Petroleum	50cS.A.	July 1, 26	15,300	19⅝	19¾	x19	19¼	+ ⅛
24⅞	17	24⅜	16¾	(sh)	4,500,682	N P.	Sinclair Consolidated	.....	May 31, 24	52,100	18¾	20½	18¾	20	+1¼
94⅛	78¾	99½	90	$	17,528,300	$100	do pfd	$2Q	Nov. 15, 26	1,000	97¼	98½	97¼	98¾	+1⅜
32½	21¾	36⅞	26⅝		27,393,090	25	Skelly Oil Co	50cQ	Dec 15, 26	34,200	34	35¼	33¾	34⅞	+ ⅜
.....	.....	63¾	52⅝	(sh)	13,016,434	N.P.	S. O. California	50cQ	Dec. 15, 26	25,800	57⅞	58¾	57⅞	58¾	+1
47½	38¾	46¾	37½		517,064,800	25	S. O New Jersey	25cQ	Dec. 15, 26	44,500	37⅞	38⅝	37¾	38⅛	+ ⅛
119	116¾	119⅛	115		199,972,900	100	do pfd	$1¾Q	Dec. 15, 26	16,500	115¼	115½	115¼	115½	+ ¼
.....	.....	33¼	32½		421,750,400	25	S. O. New York	40cQ	Dec. 15, 26	40,100	32⅞	33⅛	32⅝	33	+ ⅜
43⅞	38⅜	41⅝	30⅝	(sh)	1,171,951	N.P.	Sun Oil	25cQ	Dec. 15, 26	700	32	32½	31	31	—1
6⅛	2	5¼	1	(sh)	1,121,368	N.P.	Superior Oil Corp	.....	Dec. 20, 20	44,200	5	5¼	4¾	5	— ⅜
55	42¾	58	48	$	88,092,200	$ 25	The Texas Co	75cQ	Dec. 30, 26	10,900	56⅜	58	56⅜	57½	+1
.....	.....	57⅞	53½		28,590,300	25	The Texas Corp	.....	.....	65,400	56⅜	*57⅞	56⅝	57½	+1½
23¾	10⅞	19½	12		8,380,340	10	Texas Pacific Coal & Oil	.....	June 30, 23	19,100	14½	15¾	14½	15¼	+ ⅜
36⅞	30¼	39¼	27	(sh)	2,138,543	N.P.	Tide Water Oil Co	37½c	Dec. 31, 26	900	28½	28½	27½	27⅞	— ⅜
101	99	103	87¾	$	20,705,100	$100	do 5% pfd	$1.25Q	Nov. 15, 26	2,000	89¾	90	89¼	90	+1¼
5⅞	3½	5½	3	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	7,200	3⅞	3⅞	3¾	3⅞	0
43⅜	33	58⅜	37¼	$	40,668,950	$ 25	Union Oil of California	50cQ	Nov. 10, 26	21,600	53	54½	52¾	54	+1
134	96¼	120	80		24,423,300	100	Union Tank Car Co	$1½Q	Dec. 1, 26	300	117	117	117	117	— ½
117⅛	113¼	118	113¼		12,000,000	100	do pfd	$1¾Q	Dec. 1, 26	.....	.....	.....	.....	.....	.....
31¾	25½	29¼	25⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Oct. 20, 26	1,500	26	26	25½	25¾	— ⅜

*New High †New Low x Ex-Dividend Total Sales 1,623,500

Pittsburgh Stock Exchange

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Dec. 17 Sales	First	High	Low	Last	Ch'ge
.....	.....	8½	6⅝	N.P.	Andes Petroleum	3,731	7¾	7¾	7½	7½	— ⅛
8¼	5¼	8½	5¾	$ 10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
.....	.....	90½	79¾	$100	Columbia Gas (w.i.)	165	88¾	88¾	88	88	— ⅝
.....	.....	101⅜	95	$100	do pfd w.i	158	101	101¼	101	101	0
18	14½	17	12½	$ 10	Devonian Oil	320	14¾	15	14¾	15	+ ¼
112⅝	105⅛	116½	112	$100	Duquesne Lt. 7% pfd.	40	115½	115½	115½	115½	0
.....	.....	10	5⅛	N.P.	Houston Gulf Gas	600	6	6	6	6	0
.....	.....	46	39	25	Lone Star Gas Corp	2,903	44¼	45½	44⅛	45	+ ½
37¼	31	47⅜	33⅜	25	Ohio Fuel Corp	69	46	46	45	45	—1¾
.....	.....	47½	42	....	do ctfs. of deposit	213	45¼	45¼	45¼	45¼	— ½
.....	.....	6¾	5	....	Ohio Oil & Gas	.....	.....	.....	.....	.....	.....
34	26	34	28	25	Oklahoma Nat. Gas	.....	.....	.....	.....	.....	.....
.....	.....	21	19¼	....	do ctfs. of deposit	2,544	20⅝	21	20⅝	20¾	0
8¾	5	5⅝	3⅜	5	Pittsburgh O. & G	100	3½	3½	3½	3½	— ⅛
9⅝	6	10	7½	10	Salt Creek Cons	50	8	8	x8	8	0
13¾	8¼	27	8	10	Tidal Osage	1,730	22	22	21½	22	+ ½
.....	.....	45	40	N.P.	Waverly Oil Wks. "A"	210	44½	44½	44	44	— ½

Pittsburgh Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions Week Ended Dec. 17 Sales	First	High	Low	Last	Ch'ge
2½	.60	3⅜	2½	$5	Colombia Synd	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	....	Columbia Gas Rights	200	3¼	3¼	3¼	3¼	.....
.60	.15	.20	.06	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
9	5½	22	22	10	Forest Oil	.....	.....	.....	.....	.....	.....
82⅜	64	91½	85	25	Gulf Oil Corp	.....	.....	.....	.....	.....	.....
.....	.....	79	79	100	Houston Gulf pfd	.....	.....	.....	.....	.....	.....
12½	3¼	12	7½	N.P.	Leonard Oil & Dvlp	4,300	9¼	9¾	9¼	9⅜	+ ⅛
.....	.....	1⅝	1⅝	N.P.	Mountain & Gulf	.....	.....	.....	.....	.....	.....
.....	.....	30¼	29	....	Oklahoma Gas	.....	.....	.....	.....	.....	.....
.47	.20	2	.15	10	Omar O.&G	20,517	1.30	1.90	1.20	1.80	+ .50
.....	.....	2	1¾	5	Pittsburgh Oil Dev	.....	.....	.....	.....	.....	.....
27½	25	83½	20	10	Plymouth Oil	30	28	28	28	28	+ ¼
7	3	5½	3	5	States Oil	30	4½	4½	4½	4½	0
4	1⅛	3½	2	$1	Texon Oil & Land	1,360	3⅛	3⅛	3⅛	3⅛	+ ⅛
.....	9	25¾	8	10	Tidal Osage (non-voting)	.....	.....	.....	.....	.....	.....

*New High †New Low xEx Dividend ‡Ex Rights

NEW YORK BONDS

Week Ending Dec. 17

	High	Low	Last	Ch'ge
Amer. Rep. Deb. 6s	99¼	99	99	0
Assoc. Oil gold 6s	103	102¾	102⅞	— ⅛
Atl. Gulf & WI ss 5s	69½	68⅛	69	— ⅜
Atlantic Refg. deb. 5s	101¼	101	101¼	+ ⅛
Barnsdall Corp. sf 6s	99⅞	99⅛	99⅞	+ ⅛
Cal. Petrol. sf 6½s	103¾	103¾	103¾	0
Cal. Petrol. Cor. 5½s	100¾	100⅛	100¾	+ ¼
Empire Gas & Fuel 7½s	105¼	105	105	0
Empire Gas & Fuel 6½s	100	99½	99⅞	+ ⅜
Gen. Asphalt 6s	108½	108	108	— ½
Gen. Petroleum 5s	101¾	101¼	101⅜	— ¼
Humble Oil & Refg. 5½s	102½	102⅜	102½	+ ⅛
Mid-Cont. Pet. 6½s	104¼	104¼	104¼	0
Pan-Amer. P & T 7s	105	105	105	0
Pan-Amer. P & T 6s	106	104½	105¼	+ ¾
Simms Pet. cwt. 6s	101¼	100¾	101	— ¼
Sinclair Con. Oil Col. 7s	98¼	97	98¼	+ ½
Sinclair Con. Oil Con. 6½s. 93		92	92⅞	+ ½
Sinclair Con. Oil 6s	100⅞	100⅝	100⅝	+ ½
Sinclair Crude Oil 6s	101	100½	101	+ ¼
Sinclair Pipe Line sf 5s	93	92¼	93	+ ¾
Superior Oil 7s	100	100	100	— ½
Union Oil of Cal. 6s-A	107⅝	107⅜	107½	0
Union Oil of Cal. 5s-B	101½	101½	101½	0
Union Oil of Cal. 5s-C	99¼	99⅛	99⅛	+ ⅛

British American Alters Shares

TORONTO, Dec. 18.—Stockholders of the British American Oil Co., Ltd., have ratified the proposed alteration of the capital structure by converting each $25 share into four shares of no par value. About 25 per cent of the company's authorized stock remains unissued.

Standard Oil Stock Traded in New York

1925 High	1925 Low	1926 High	1926 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Dec. 17 Sales	First	High	Low	Last	Ch'ge
26¾	17¼	21	16⅜	£ 4,000,000	£1	Anglo American	60¾cS.A.	May 27, 26	700	19¼	20	19¼	20	+ ¾
.....	.....	20¼	16½	.....	£1	do ctfs non-votg	.....	.....	900	18½	19¼	18½	19¼	+ ¼
.....	.....	19	19	.....	....	do voting ctfs	.....	.....	.....	.....	.....	.....	.....	.....
4¼	1⅜	2¼	1⅜	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	.....	.....	.....	.....	.....	.....
12⅜	8	5	3⅛	$ 10,000,000	$10	do pfd	.....	.....	200	4	4	4	4	0
240	205	301	226	1,000,000	100	Borne Scrymser	$4S.A.	Oct. 15, 26	.....	.....	.....	.....	.....	.....
.....	.....	70	49	.....	....	do new	.....	.....	.....	.....	.....	.....	.....	.....
72	58½	59½	42	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 26	1,700	44¾	44	44¾	45¼	+ ¼
74	48½	82½	65	3,000,000	25	Chesebrough Mfg	75cQ	Dec. 28, 26	200	76	77	76	77	0
115	110	.....	.....	1,000,000	100	do pfd	$1¾Q	Sept. 30, 26	.....	.....	.....	.....	.....	.....
31½	21⅞	25⅞	17¾	54,914,280	10	Continental Oil	25cQ	Dec. 15, 26	16,500	19⅞	19⅞	19⅜	19½	— ¼
17½	10	17	13½	1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	100	14¾	14¾	14¾	14¾	— ¼
156	132	137	102	3,000,000	100	Cumberland Pipe Line	$3Q	Dec. 15, 26	280	105	106	104	105	0
96	61	65¾	43	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 26	50	48½	48½	48½	48½	—1
68½	23½	32½	9⅞	16,000,000	100	Galena Signal Oil	.....	June 30, 25	1,300	11	11	10	10	—1¾
105	88	94½	85	4,000 000	100	do new pfd	.....	June 30, 26	10	40	40	40	40	—2
114	95	97½	45	2,000,000	100	do old pfd	.....	June 30, 26	20	45	45	45	45	0
95	42¾	68¾	52	72,916,650	25	Humble Oil & Refining	30cQ	Oct. 1, 26	32,700	57⅝	63½	57½	63⅜	+5⅛
154½	127	144½	127	20,000,000	100	Illinois Pipe Line	$6S.A.	Dec. 15, 26	100	127½	127½	†127	127	— ¼
39¼	27¾	39¾	31½	(sh) 6,491,852	N.P.	Imperial of Canada	25cQ	Dec. 1, 26	3,400	38¼	38¼	37¼	37½	— ¾
84	57⅜	70	54¼	$ 5,000,000	50	Indiana Pipe Line	$1Q	Nov. 15, 26	300	60½	62½	60½	61	+4
35¾	22⅛	35¼	28¾	(sh) 7,118,138	N.P.	International Petroleum	25c	Nov. 15, 26	12,500	31⅜	31¾	31¼	31½	+ ⅜
25⅜	16½	20⅜	12⅜	$ 6,362,500	$12½	National Transit	25cQ	Dec. 15, 26	1,000	13¼	13¼	13	13¼	— ⅛
79	49¾	51½	27⅛	5,000,000	100	New York Transit	.....	July 15, 26	50	69	69	69	69	—6¼
88	67½	80½	64	4,000,000	100	Northern Pipe Line	$3S.A.	July 1, 26	1,200	59⅞	60⅞	59¾	60¾	+1¼
75¾	60¼	67¾	55¾	60,000,000	25	Ohio Oil Co	50cQ	Dec. 15, 26	200	17⅛	18½	17½	17⅝	+ ⅛
44½	19	24¾	15	10,000,000	25	Penn Mex Fuel	.....	May 21, 25	10,800	50¼	50¼	49⅝	49⅞	— ⅜
65¾	45⅞	60¼	48	60,000,000	25	Prairie Oil & Gas	50cQ	Nov. 30, 26	1,850	125¼	125¾	125	125	— ¼
129¾	106	127½	122¼	81,000,000	100	Prairie Pipe Line	$2Q	Oct. 30, 26	30	190	190	190	190	—2
254	200	220	184½	4,000,000	100	Solar Refining Co	$5S.A.	Dec. 20, 26	200	21	21¾	†21	21¼	+ ¼
103	63	74½	21	10,000,000	100	Southern Pipe Line Co	.....	Mar. 1, 26	2,200	40¼	41	x 39⅝	39¾	— ¼
47½	45	50	34½	20,000,000	25	South Penn Oil Co	50cQ	Dec. 31, 26	100	54	54	x 54	54	0
84	50	56½	49	3,500,000	100	South West Pa. Pipe Line	$1Q	Dec. 31, 26	41,300	65⅜	66¾	65¼	66¾	+1¼
70¾	59½	70½	60½	$ 223,756,258	$25	S. O. Indiana	62½cQ	Dec. 15, 26	800	21⅜	21⅜	20¾	20¾	— ¼
46	30⅛	36½	16½	8,000,000	25	S. O. Kansas	.....	June 16, 24	1,400	118¼	118¾	x117¼	118	—1
137	114¾	134¾	108	16,864,484	25	S. O. Kentucky	$1Q	Dec. 31, 26	100	47½	48	48	48	+ ½
.....	.....	51⅛	42	4,518,000	25	S. O. Nebraska	62cQ	Dec. 20, 26	11,400	38	38	37½	37½	+ ¼
369	338	362	288	14,000,000	100	S. O. Ohio	$2½Q	Oct. 1, 26	30	347	347	340	340	—10
123	116	122	117	7,000,000	100	do pfd	$1¾Q	Dec. 1, 26	150	118	118¼	118	118¼	+ ¼
27	12	23	15⅜	1,722,931	25	Swan-Finch Co	.....	Nov. 1, 19	.....	.....	.....	.....	.....	.....
109½	80⅛	112	90¼	61,919,950	25	Vacuum Oil Co	50cQ	Dec. 20, 26	9,600	94¼	97½	94¼	97⅛	+2¾

New

INDEPENDENT OIL BOOKLET

This Booklet contains description of properties, latest financial statements, dividend records and other important information regarding this group of companies.

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CARL H. PFORZHEIMER & CO.

Specialists in Standard Oil and Miscellaneous Oil Securities

25 Broad Street New York

New York Curb Market

1925 High	1925 Low	1926 High	1926 Low	Par Value	Stocks	Transactions week ended Dec. 17 Sales	First	High	Low	Last	Ch'ge
11½	2½	14¼	4	$ 5	Amer. Maracaibo	104,900	7	8⅜	6½	7¾	+ ¾
8⅜	5	8⅜	5¾	$10	Arkansas Nat. Gas	1,800	7½	7¾	7½	7½	0
.....	.....	19⅜	14⅜	N.P.	Beacon Oil	2,800	17¼	18	17¼	17½	— ⅜
47½	38	.....	.....	$25	British-American	2,300	79	85¼	x 79	85¾	+7¾
10¼	2¾	28⅜	9¼	25c	Carib. Syndicate	102,400	26⅞	* 28⅜	25¾	26⅝	0
43	35	49⅝	37½	$20	Cities Service	14,400	49⅜	* 49⅝	x 49⅜	49½	+ ⅛
85½	80¼	92½	82¾	100	do pfd	2,700	92½	92½	x 92	92¼	— ¼
8	7¼	8⅜	7⅜	10	do pfd. B	400	8¼	8¼	x 8¼	8¼	0
21¾	17½	24½	19	10	do bankers' sh	.....	.....	.....	.....	.....	.....
2¾	.60	3½	1¾	N.P.	Colombia Syndicate	28,600	2⅛	2⅛	2⅛	2 1/16	0
15	8¼	16	10	N.P.	Creole Syndicate	10,100	13¾	14	13½	13⅝	— ⅛
12¼	5	7⅜	1⅝	N.P.	Crown Central	7,200	1⅞	2	1⅞	2	+ ⅛
7	2	4	1 1/16	N.P.	Derby Oil & Ref	.....	.....	.....	.....	.....	.....
27	10½	19	13	N.P.	do pfd	.....	.....	.....	.....	.....	.....
.....	.....	2¼	.60	....	Euclid Oil	.....	.....	.....	.....	.....	.....
6	1⅜	7¼	2½	N.P.	Gibson Oil	26,900	3¾	4	3⅜	3½	— ⅛
3¾	1⅜	2	.63	N.P.	Gilliland v.t.c	300	1⅜	1⅜	1⅜	1⅜	0
98¼	63½	98	82	$25	Gulf Oil Corp	17,100	94½	* 98	94½	96⅝	+2
5⅞	2¼	4	1	N.P.	Kirby Petroleum	300	2	2	2	2	+ ¼
18	6	12¾	5¾	N.P.	Leonard Oil & Dev	41,100	7⅜	9¾	7⅜	9⅝	+2⅛
25⅞	18	27	20	N.P.	Lion Oil Refining	8,700	25⅞	* 27	25¾	25⅞	+ ⅛
.....	.....	46	31½	$25	Lone Star Gas	500	44	44	43½	43½	—1
4¼	1¾	3⅜	1½	N.P.	Marland of Mexico	.....	.....	.....	.....	.....	.....
5¾	.56	5½	1⅞	$10	Mexican-Panuco	10,700	3⅜	3¼	3	3⅛	0
2	1	1¾	1¼	1	Mountain & Gulf	.....	.....	.....	.....	.....	.....
26¼	18¾	26	22½	10	Mountain Prod	4,200	25½	25½	x 24¾	24⅞	— ½
6¾	3⅝	6¾	5	5	New Bradford	2,000	5⅜	5¼	5	5	— ¼
24¾	16¼	11¾	2	10	New England Fuel	200	6	6	6	6	0
19⅜	6¼	17	9⅛	1	New Mex. & Ariz	18,400	12	15	12	14	+2
12½	8¼	17	8	25	New York Oil	100	10	10	10	10	+ ⅝
37	14	36	34¼	25	Ohio Fuel Corp	.....	.....	.....	.....	.....	.....
.....	.....	9⅞	6	N.P.	Pandem	5,900	9	9¼	8⅞	9	0
2½	.90	2¾	.20	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
28¼	16	22¾	12	$10	Pennok Oil	400	13½	13½	x13⅜	13⅜	+ ⅜
44½	16	38	14⅛	25	Red Bank Oil	3,700	22	27¾	22	27	— ⅛
33½	19	28¾	12	N.P.	Reiter-Foster	6,000	17	18	16½	17	+ ¼
.....	.....	27½	22	$25	Richfield Oil w.i	.....	.....	.....	.....	.....	.....
9½	3½	7½	4½	N.P.	Ryan Consolidated	200	4⅝	4⅝	4½	4½	+ ⅛
9¾	6⅜	10	7½	$10	Salt Creek Cons	1,100	8¼	8¼	8	8	0
35	24	36	26⅞	10	Salt Creek Prod	3,500	30¾	30⅞	30¾	30¾	— ⅛
3⅞	1	4	1⅜	5	Savoy Oil	.....	.....	.....	.....	.....	.....
13¾	9	27	7⅜	10	Tidal Osage	1,200	22	22	21⅛	22	+ ½
10⅞	8	25¾	8¼	10	do non-voting	3,900	20⅜	20½	19⅞	20½	+ ½
.....	.....	27	20⅞	N.P.	Tide Water Assoc	4,400	22	22⅜	21	22¼	+ ⅜
.....	.....	99¼	94¾	100	do pfd	7,600	95	95⅜	†94¾	94¾	— ¾
4⅞	1¾	8	4¼	5	Venezuelan Pet	17,100	6⅞	7¼	6¾	7⅜	+ ⅛
.....	.....	29¾	25½	N.P.	Warner-Quinlan	.....	.....	.....	.....	.....	.....
31¼	22⅜	36⅜	22	N.P.	Wilcox O. & G. new	4,200	27	29⅜	27	29¼	+3
7	3⅞	9½	4⅜	$ 1	Woodley Petroleum	400	7¼	7½	x7¼	7¼	0

*New High †New Low xEx-Dividend.

(Continued from page 105)

mestic demand was routine but on a slightly larger scale than during the preceding week.

Lubricants—New York

A French buyer was reported to have purchased 500 barrels of Pennsylvania cylinder stocks on a basis of 18 cents a gallon for 600 s.r. unfiltered, for nearby shipment, from a large local Independent refiner. Export buying interest in Pennsylvania lubricants has been much keener the past few days, but prices have not shown any change. Domestic consumption is fairly large for this time of the year and prices are fairly well held. Neutral oils are in growing demand. Some of the larger distributors are shopping around for spring supplies.

Lubricants—Gulf Ports

Export demand for zero cold test oils has improved and it was reported that 35,000 barrels of assorted lubricants were sold by a leading refiner for nearby shipment to France. The prices were not divulged. Underlying conditions are improving, as there is a much more active demand from domestic buyers who have allowed their stocks to run down. Although the price trend has been irregular the past two weeks there was a firmer tendency noted on Friday and Saturday.

Oil Dividends

	Amt.	Payable	Stock of Record
Canfield Oil q	$1.50	Dec. 31	Dec. 20
do pfd. q	$1.75	Dec. 31	Dec. 20
Cities Service m	½%	Feb. 1	Jan. 15
do stock m	½%	Feb. 1	Jan. 15
do pfd. m	½%	Feb. 1	Jan. 15
do pref. B m	½%	Feb. 1	Jan. 15
Holly Oil q	25c	Dec. 31	Dec. 15
Lion Oil q	50c	Jan. 27	Dec. 31
do extra	25c	Jan. 27	Dec. 31
Lone Star Gas q. 50c	50c	Dec. 31	Dec. 21
Mexican Pet. q	$3	Jan. 20	Dec. 31
do pfd. q	$2	Jan. 20	Dec. 31
Mountain & Gulf q	2%	Jan. 15	Jan. 2
do extra	1%	Jan. 15	Jan. 2
Nat'l Fuel Gas q	$2.50	Jan. 15	Dec. 31
do extra q	$2	Jan. 15	Dec. 31
New Bradford Oil q	12½c	Jan. 15	Jan. 2
Pan American P. & T. q	$1.50	Jan. 20	Dec. 31
do B q	$1.50	Jan. 20	Dec. 31
Shaffer O & R initial	$7	Jan. 25	Dec. 31
do pfd. q	1¾%	Jan. 25	Dec. 31
do pfd. accum	19¼%	Jan. 25	Dec. 31

NEW YORK CURB BONDS

Week Ending Dec. 17

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	101⅛	101⅛	101⅛	— ⅛
Cities Serv. 6s '66	97¾	97	97¾	+ ½
Cities Serv. 7s "D" '66	122¼	122¼	122¼	0
Galena S. O. 7s '30	90	88¼	90	+2
General Pet. 6s '28	101⅜	101	101⅜	— ⅛
Gulf Oil 5s '37	101	100½	101	+ ¼
Gulf Oil 5½s '28	100⅝	100½	100⅝	0
Indepen. Oil 6½s '31	102½	101⅜	101⅜	— ⅛
Pan Amer. Pet. 6s '40	102	99¾	101½	+1¼
Pennok Oil 6s '27	100	100	100	0
Pure Oil 6½s '33	103¾	103½	103½	0
Richfield Oil 6s wi '41	99	99	99	0
S O N J 5s wi	102¼	101⅞	102	0
S O N Y 4½s wi	97⅞	97¾	97⅞	0
S O N Y 6½s '33	105¼	105	105	0
Sun Oil 5½s '39	100¼	99¾	99¾	0
Tidal Osage 7s '31	102¼	102¼	102¼	— ⅛
Trans. Cont. Oil 7s '30	96⅞	96	96¼	— ¼
United Oil Prod. 8s '31	49	40¼	49	+9¼
Valvoline 7s '37	104¾	104¾	104¾	— ¼

THE OIL INDUSTRY EXCHANGE

Positions Wanted

Salesman with 15 years experience calling on service stations and garages in Louisiana selling specialties would consider connection January 1st. Either on salary or commission. A-1 reference. Have own automobile. Post Office Box 958, Shreveport, Louisiana.

FIFTEEN YEARS EXPERIENCE COVERING WIDE SALES ACQUAINTANCE among jobbing trade and thorough knowledge of Tank Wagon and Service Station distribution. Box 752.

REFINERY SUPERINTENDENT desires position with reliable firm or new corporation. Am thoroughly acquainted with construction as well as operation. Have had twenty years experience in refining various grades of crude oil. Can furnish the best of reference.
Address Box 753.

YOUNG MAN with over 12 years experience in petroleum industry, would like to affiliate with large oil company or become Eastern representative. Have been selling to exporters and jobbers in Atlantic Coast States and know the territory and business thoroughly. Prefer commission arrangement.
Address Box 748.

Situations Open

SALESMEN WANTED

Several territories open in Middle-West. Experienced young men with acquaintanceship over the Iowa, Illinois, Minnesota, Indiana or Michigan jobber preferred.

Good opportunity. State age and experience, details, also salary expected.

Box 749.

CHEMIST WANTED

A graduate and experienced oil refinery chemist. Give reference and past experience.

Address Box 745.

ESTABLISHED MANUFACTURERS REPRESENTATIVES

To sell on liberal commission basis to oil jobbing trade a complete line of nationally known gasoline and oil storage systems and air compressors. Your reply must state in detail lines you are now selling and exact territory you are covering.

Address Box 742.

Business Opportunities

WHERE JOBBER AND REFINER MEET

My office is nothing more than a clearing house for Seller and Buyer of

Petroleum Products

DALE W. MOORE

532-533 Mayo Bldg., Tulsa, Okla.
Telephones: 3-4177 and 3-4178.
L. D. 136

Wanted—To Buy

COMPLETE JOBBING BUSINESS WANTED

with large gallonage, located west or south of Pennsylvania. Give complete details and price in answer.

Box 751.

For Sale

2 SWEETLAND FILTER PRESSES FOR SALE, SIZE NO. 12, REASONABLE.

ACME OIL CORPORATION,
189 NO. CLARK ST., CHICAGO, ILL.

GOOD JOBBING BUSINESS FOR SALE

in central Illinois town surrounded by rich farming community. Approximate gallonage 180,000 per year. Storage 30,000 gallons. Drive-in filling station located in center of town on paved State hard road. Truck tank and several curb pumps now in operation. All equipment in good condition. Has been in operation for three years. Room for expansion. Logical and legitimate reason for selling. An investment of $7000 to $7500 necessary to take over the proposition.

For further information Address
Box 750.

Miscellaneous

WHAT IT COSTS

For "Position Wanted" advertisements—5 cents per word. Minimum cost $1.00. All other classified advertising—10 cents per word. Minimum cost $3.00. Advertisements set in special type or with border—$4.00 per column inch. Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

Advertisers having box numbers should be addressed in care of National Petroleum News, 817 Huron road, Cleveland, Ohio, unless otherwise specified.

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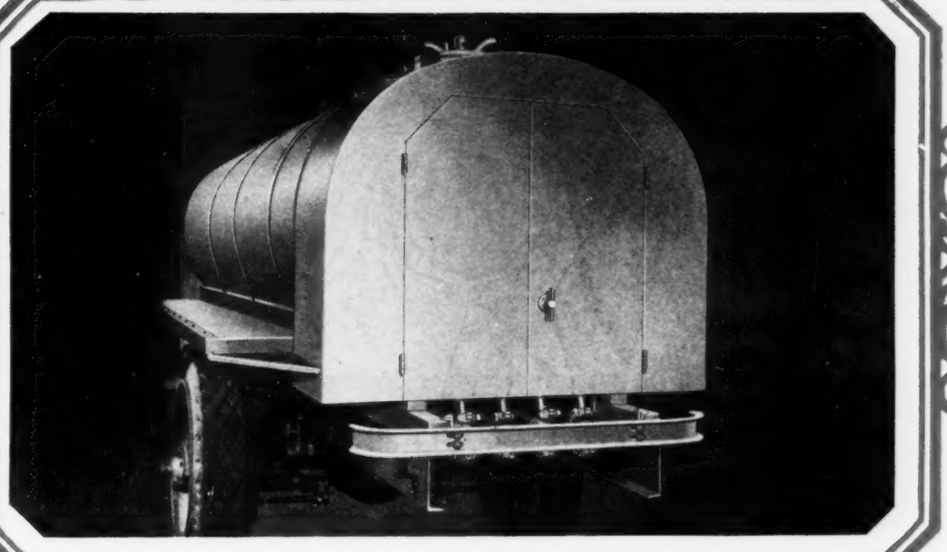


Farrell's ability to build any size, type, or capacity truck tank is known to thousands —— What are your needs?

There are but a few real *big* users of truck tanks (★)—companies of national reputation—who are public servants—responsible to millions for the fulfillment of their promised service—these companies (★) are the most careful buyers of any product that is used in the handling of their daily deliveries.

You may be the user of but one tank—again you may operate hundreds—but regardless, your problem is the same. Your truck tanks must be more than "to-days" carriers—they must be dependable and serviceable carriers every day for years to come.

Farrell Manufacturing Company

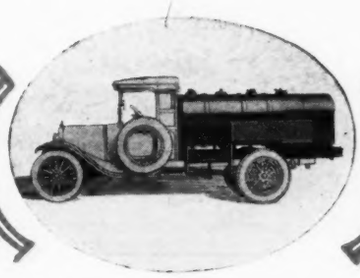
Works—Joliet, Illinois

Sales Departments

644 W. Washington Blvd.
Chicago

5459 Grand River Ave.
Detroit

★—many more Farrell Truck Tanks are standard equipment with the world's largest oil companies.



It always pays to get Farrell's prices—complete catalog and specifications sent upon request.

Entered as second class matter January 17, 1910 at Cleveland O., postoffice under act of March 3, 1879, by National Petroleum Publishing Co.

WITH less crude oil produced in 1926 than in 1925---

With more refined products made and consumed---

With 22,500,000 motor cars and trucks registered in the United States today---and the expectation that registration by the end of 1927 will be at least 25,000,000---

With the Oil Industry and the industries that use its products in the healthiest condition they have enjoyed in recent years---

We wish Everybody - Everywhere - a Happy and Prosperous New Year.

TRANSCONTINENTAL OIL CO.

Producers, Refiners, and Marketers of Marathon Quality Products

GENERAL OFFICES *Ritz Building* TULSA, OKLA.

Sales Offices:	Atlanta Chicago	Fort Worth Bristow	Pittsburgh Sioux City
Refineries:	Boynton	Bristow	Fort Worth

Warehouses at convenient shipping points.

Budd-Michelin Dual Wheels speed up your sales and slow down your selling costs

◆

AN oil truck can no longer afford to look like a Spanish galleon—and be as long on a trip as a New Bedford whaler!

Times have changed, and oil truck owners are changing—changing to Budd-Michelin Dual Wheels and *pneumatic* tires.

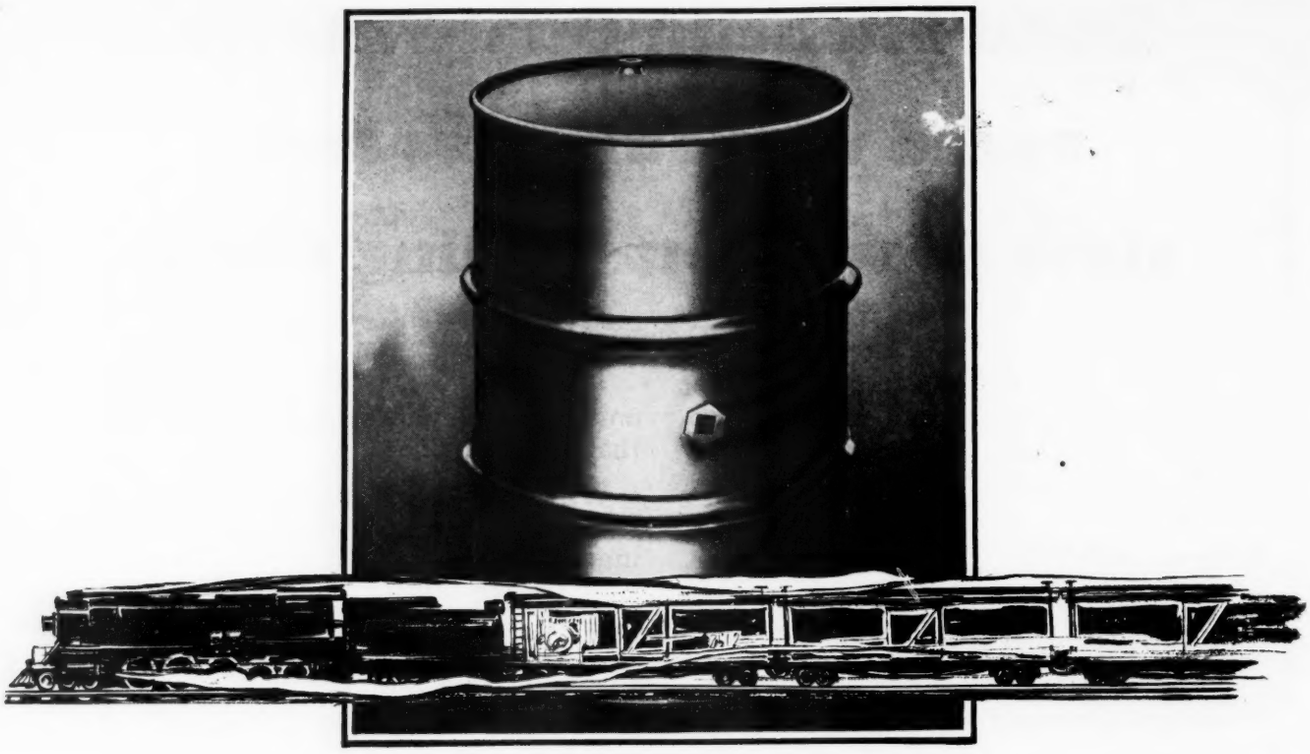
They're making longer trips in shorter time—more deliveries—and losing fewer sales to competitors. They're getting lower maintenance costs, fewer repair bills—and their trucks present a snappy appearance that catches the eye of every motorist on the road. There's a sales punch in that feature alone!

Why shouldn't your trucks have these advantages? If you think pneumatics won't give the tire-mileage, consider the heavy bus industry. Over 50,000 giant buses and trucks are on Budd-Michelin Dual Wheels and they're getting from 15,000 to 20,000 miles and more from every set of tires.

That's the brand of mileage *you* can expect from Budd-Michelin Duals. All manufacturers supply them on new jobs. You can equip your present trucks with Duals, too. Ask your dealer—or write us.

BUDD
WHEEL COMPANY
Detroit

The Budd-Michelin equipment—two Budd-Michelin single wheels in front, two Budd-Michelin Dual Wheels in the rear (pairs of single wheels acting together as units). All wheels completely interchangeable either as units or as halves of Duals. One spare.



Insure Enroute

STEEL production, sheet rolling, Drum forming, and assembly—the whole job of making Wheeling Steel Drums is performed by one organization, with full knowledge of modern shipping requirements, assisted by every needed manufacturing facility "From Mine to Market".

Insure enroute. Your products are worthy of all the protection in transit that can be provided by Wheeling Steel Drums. Ask our Barrel Sales Division, Portsmouth Works, Portsmouth, Ohio, to consult with you on your needs.

WHEELING STEEL CORPORATION, WHEELING, W. VA.
Barrel Sales Division, Portsmouth, Ohio

WHEELING

STEEL DRUMS

"From Mine to Market"

Appreciation!

THERE is something to business besides just making money. There's the fun of doing a thing well---

You, our customers, have made a good year possible for us, and we are very grateful. You have been generous with you patronage, loyalty and cooperation, which are more essential to us than labor, metal and paint.

We have furnished you thoroughly good merchandise and have not only kept the quality of Bennett Products to the top-notch of previous standards, but have improved it wherever possible.

Next year we intend to serve you even better.

We thank you for your patronage, your cooperation and your loyalty, and wish you all good things throughout the New Year.

Cordially yours,

THE BENNETT ORGANIZATION

Symbol of Quality

Bennett Pumps Corporation
QUALITY BUILT
Bennett
Oil and Grease Equipment
Muskegon, Michigan.

Here Is Our New Year Wish for Our Friends —the Jobbers

that you Sell More, and Prosper More during 1927 than in 1926

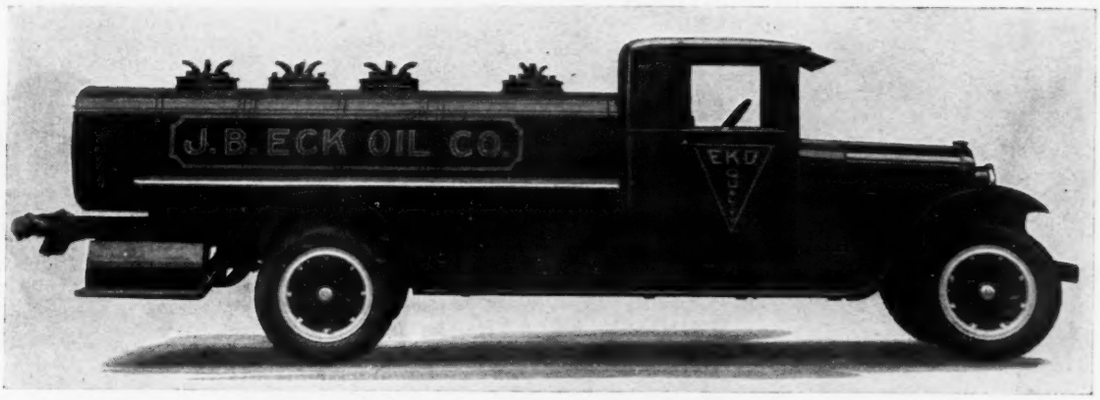
and that Your Measure of Success, Friendship and Happiness be Overflowing.

We have enjoyed working with you during the year just closed and in beginning the new one, pledge to you our complete co-operation.

Keen & Woolf Oil Company

REFINERS OF HIGH QUALITY GULF COAST LUBRICATING OILS

Houston, Texas



This 500 gallon, 4 compartment, semi-elliptical truck tank is mounted on a Graham Brothers 156" WB chassis. It is fitted with 14" manholes, 6" fillers, ¾" vents, adjustable sub-sills, integral can box with side-swing doors, and a Heil Lift-Lock bumper bar.

Heil Compartment Tanks For Motor Trucks

THERE is a decided swing in the direction of better looking and better built truck tanks. Something is desired that will give a longer life of service and at the same time be a high class advertising medium. Heil compartment tanks such as the ones shown on this page have answered the demand. Beautiful body lines with a long graceful sweep from the hood to the can-box bring out the massiveness of a truck tank to the highest value-point of attraction. Autoists remember the tank as it rolls along the highways, remember the name of the oil jobber, and best of all, remember where to buy their next fill of gas. You are getting more than a truck tank when you specify Heil, you are getting the best advertising medium possible for your products.

Send for the Heil Tank Catalog and Compare Heil prices. It pays to buy the best. Let Heil show you.

THE HEIL CO.

1138-50 26th Avenue Milwaukee, Wis.

Factory Branches

CHICAGO, PHILADELPHIA, BOSTON, NEW YORK

One of our Twenty-five Distributors is Near You.

700 gallon, 4 compartment, semi-elliptical truck tank mounted on a 2 ton Graham 162" WB chassis. Compartments from front to rear are 300-200-100-100. Equipped with steel drop-panel canracks on each side.

Exceptionally attractive in appearance, the G. & B. T-177 pump meets all the requirements of the filling station for visible measure. It is accurate, fast, safe in delivery, and built strong to stand the strain of continuous service. Made in five and ten gallon sizes; hand or air operation; visible measure mechanically controlled; approved by the Underwriters.

The G. & B. T-66, five gallon pump, is the preferred piston type pump. Made for both hand and air operation, it is fast, accurate, easy to operate, and provides generous display space for trade mark advertising. Mechanism is completely enclosed. Finished in lustrous weather-proof enamel. Approved by the Underwriters.

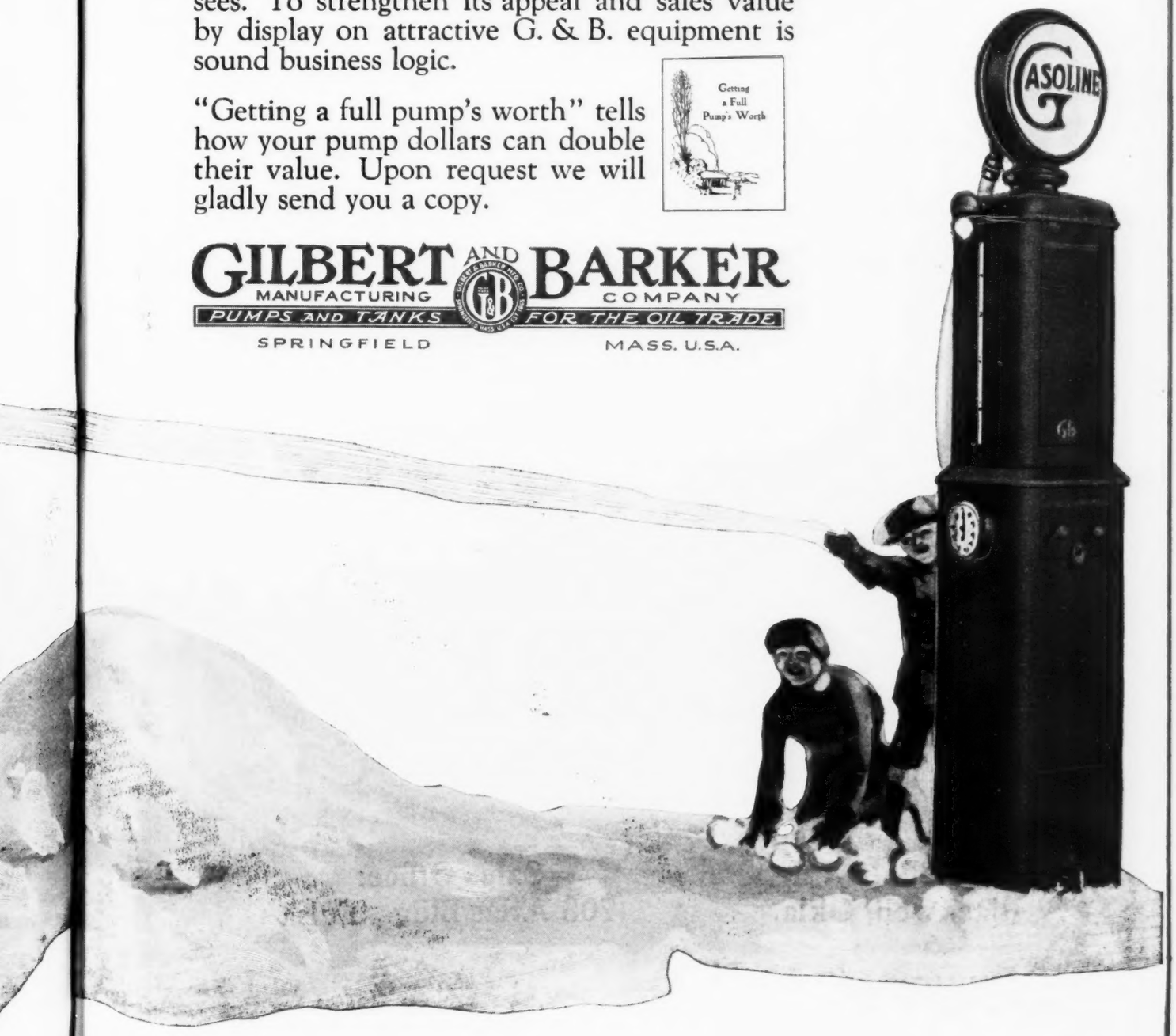
•PUMPS THAT HELP YOU SELL•

A GOOD picture deserves a good setting. By the same token, a reputable trade-mark merits a pump in keeping with it and the product it stands for.

Often the marketer's trade-mark on gasoline pumps is the only advertising the motor public sees. To strengthen its appeal and sales value by display on attractive G. & B. equipment is sound business logic.

"Getting a full pump's worth" tells how your pump dollars can double their value. Upon request we will gladly send you a copy.

GILBERT AND BARKER
MANUFACTURING COMPANY
PUMPS AND TANKS FOR THE OIL TRADE
SPRINGFIELD MASS. U.S.A.



·PUMPS THAT HELP YOU SELL·

The Old Year Closes~

May the end point to better conditions throughout the Industry and may the new test as high for you as do Globe Gasolines.

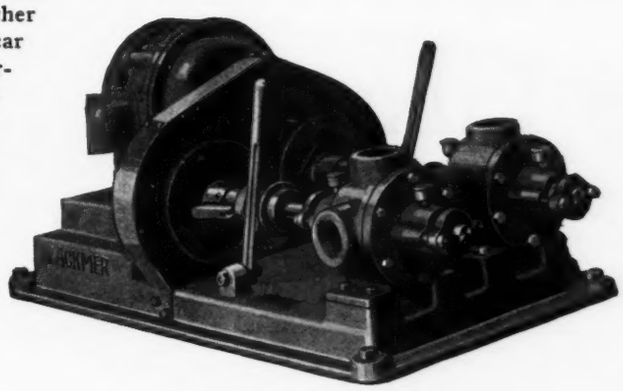
GLOBE
PETROLEUM PRODUCTS

Refinery:
Blackwell, Okla.

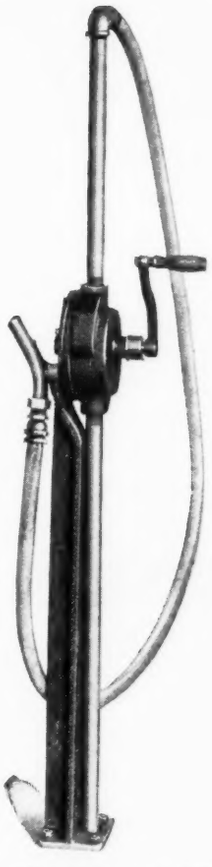
Sales Office:
708 Atlas Bldg., Tulsa

Blackmer Unloading Unit

This is a Blackmer N. S. 4 Unit largely used by jobbers. Has two 50 G. P. M. pumps. Either pump will unload a tank car in three hours easily. Furnished with electric motor or gas engine power. Has clutches for both pumps. Mounted on extra heavy cast iron base. May be furnished with space for firewall if so desired. Made in capacities up to 500 G. P. M.



OIL JOBBERS MAKE MONEY AND SAVE MONEY WITH THESE BLACKMER PUMPS



Blackmer Unloading Units for more than twenty years have delivered dependable, carefree, low cost pumping service to the oil industry. The unique construction of Blackmer Pumps provides an automatic adjustment for wear. This design adds years to the life of the pumps by allowing them to so adjust themselves that the effects of wear are not reflected in their performance.

The Blackmer "Big Boy" is a real moneymaker for oil jobbers. It is a builder of gallonage and is priced so that the jobber can afford to loan or lease it to his big users of gas. It is a thoroughly dependable non-measuring gasoline dispenser.

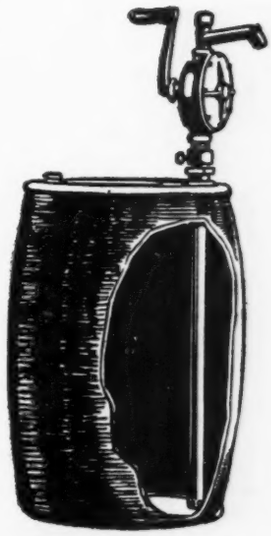
Blackmer Hand Pumps are excellent for transferring oil, gasoline, or kerosene from drums or barrels. They are positive acting and pump a continuous flow.

More Gallons Per Dollar

Blackmer Pump Co.

1809 Century Avenue
Grand Rapids, Mich.

Offices in 18 Cities



Blackmer "Big Boy"

The Blackmer "Big Boy" is a handy little dispenser pump for the jobber's outlying trade. Makes positive suction lifts. Pumps 12 gallons per minute. Has 1 inch pipe connections. Furnished complete with 8-foot hose and nozzle at an attractive price.

Blackmer Hand Pump

The Blackmer Hand Pump with barrel attachment provides an excellent means for transferring gasoline or oil from barrels or drums. It is low in price and is built for years of hard service. Jobbers have found many other uses for this little pump. It makes positive suction lifts and pumps a continuous flow. Pumps 12 gallons per minute.

The Luxury of a "home copy"

"A GOOD easy chair, my well-worn slippers, my old pipe and my weekly copy of NATIONAL PETROLEUM NEWS — is a genuine luxury, and I look forward to it every week with pleasure and profit."

These words of a veteran oil man in Pennsylvania carry a good suggestion to every man who depends on the "office copy" of National Petroleum News to keep abreast of the happenings in the oil industry.

A "home copy" of National Petroleum News is a touch of luxury and convenience you will enjoy and profit by.

And the small sum of $2.50 will bring you this luxury, convenience, enjoyment and profit each week for a year. Send for it today.

Use the coupon below:

NATIONAL PETROLEUM NEWS,
948 Caxton Bldg., Cleveland, Ohio.

The luxury of a "home copy" appeals to me. Send the next 52 issues of NATIONAL PETROLEUM NEWS to the address below.

Enclosed is $2.50 (Canada $3.50, Foreign $5.)

Am engaged in— Name _____

Div. of Industry _____ Address _____

_____

Golden Neutrals–

combining exceptionally low pour point with high flash point ~ ideal for year 'round use. ~

GASOLINE
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KEROSENE
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LUBRICATING OILS
•
FUEL OIL
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FURNACE OILS
•
MOTOR OIL
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GAS OIL
•
DISTILLATES
•
ROAD OIL

SHELL

Your Inquiry is Invited

Roxana Petroleum Corporation

Head Office , , , Shell Building , , , Saint Louis

Branch Sales Offices: Chicago, Illinois, 624 South Michigan Avenue , , , Kansas City, Missouri, Federal Reserve Bank Building , , , Tulsa, Oklahoma, Mayo Building , , , Indianapolis, Indiana, Meyer-Kiser Bank Building Cleveland, Ohio, , , , Guarantee Title Building.

Refineries: Wood River, Illinois , , , Arkansas City, Kansas

ADDRESS ALL COMMUNICATIONS TO ST. LOUIS OFFICE

Youngstown TANKS

Youngstown TANKS STANDARDIZED

On that new 1927 calendar mark just one more good resolution—

"Specify Youngstown Tanks"

Bulletin 500 mailed Free on Request.

The **YOUNGSTOWN BOILER & TANK** Company
Youngstown Ohio · · U.S.A.

Like An Extra Service Man

—*At No Extra Cost*

Your Work Can Be Made Easier And Your Service Quicker—If You Will Use This Pump. . . .

If you have been using another make of pump, you will find that getting a Birmingham Visible, Double-Piston Pump will be like putting on an extra service man---but without the extra cost. This speedy pump will fill the five-gallon bowl in 8 seconds with only six strokes of the pump handle. It is one of the fastest and most easily operated pumps on the market, and will prove a real friend when the rush hour comes.

The New Birmingham is durable. Its casing, base and dome are made of pressed steel, supported by two steel discs inside. Its pump cylinders are of brass tubing *without seams*. Accuracy is assured by carefully calibrated adjustable stops. Two sets of brass gallon-markers show the customer what he is getting.

Our prices are right. Forty-three years experience, and location near sources of raw materials enable us to offer this pump at a price which makes it the "best buy" on the market today.

Write or wire for full Information

BIRMINGHAM MACHINE & FOUNDRY CO.

Main Office and Plant: **Birmingham, Ala.**

THE Birmingham is made in five-gallon and ten-gallon sizes, and comes complete with foot valve, standard metal-lined hose, hose nozzle, lock, and wiring for electrical illumination. ¶ Painted any color you desire. This pump will be a distinctive addition to your station equipment.

BRANCH OFFICES

CHICAGO, ILL.
Chas. W. Badger,
Peoples Gas Bldg.

COLUMBIA, S. C.
R. H. deGraffenried,
Box 174.

HAVANA, CUBA
Empedrado, 16

JACKSON, MISS.
John T. Banks,
115 N. Lamar St.

LITTLE ROCK, ARK.
Maylan Petroleum Co.
220 Enterprise Bldg.

MEMPHIS, TENN.
Alton & Burge,
245 Monroe Ave.

NEW YORK, N. Y.
16 Exchange Place

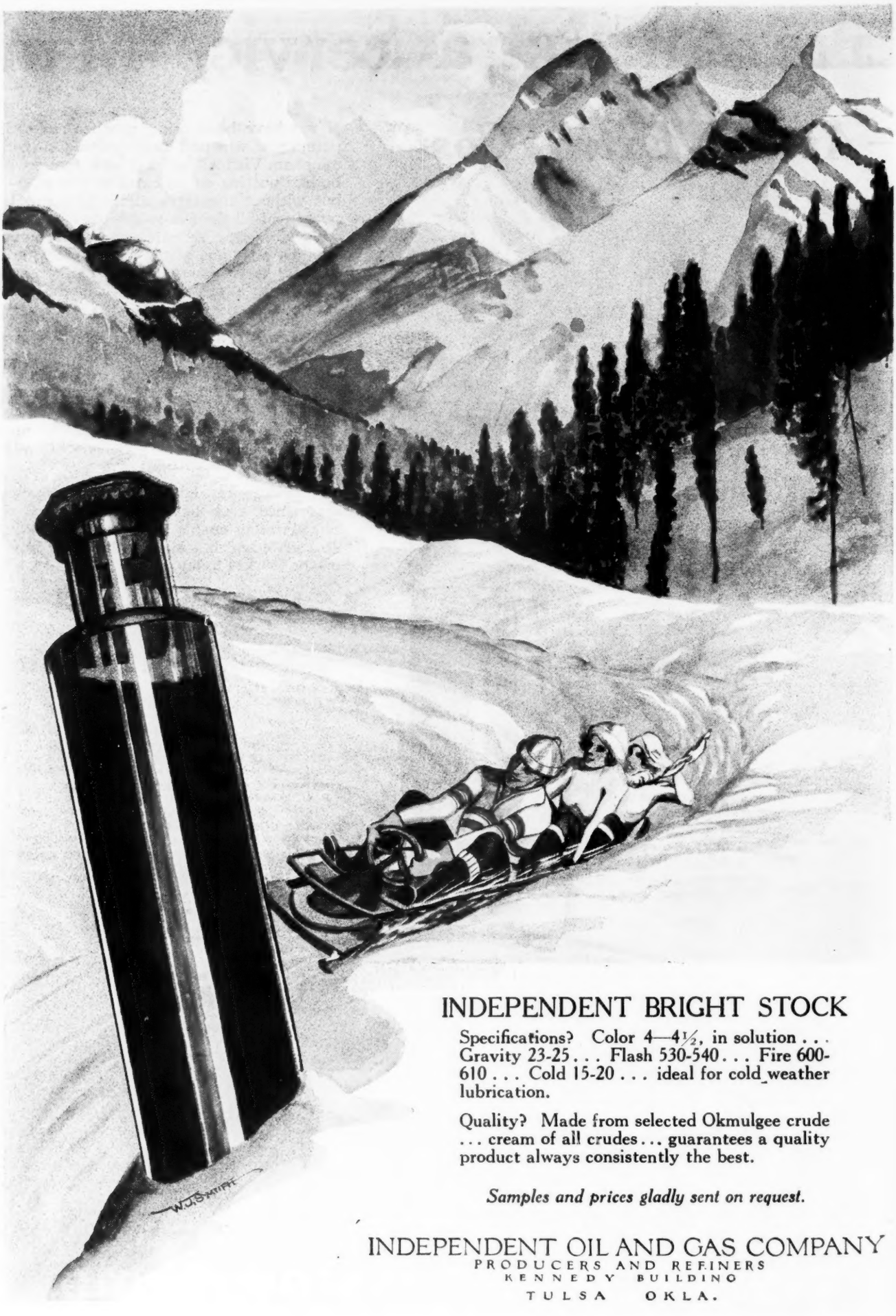
SAN FRANCISCO, CALIF
Rolph, Mills & Co.,
Underwood Bldg.

EXPORT DEPARTMENT
NEW YORK CITY
Jno. T. Walsh, Inc., 135 Broadway,
Cable Address: "Pumpmaker"

The New

BIRMINGHAM

Visible, Double-Piston Pump



INDEPENDENT BRIGHT STOCK

Specifications? Color 4—4½, in solution . . . Gravity 23-25 . . . Flash 530-540 . . . Fire 600-610 . . . Cold 15-20 . . . ideal for cold weather lubrication.

Quality? Made from selected Okmulgee crude . . . cream of all crudes . . . guarantees a quality product always consistently the best.

Samples and prices gladly sent on request.

INDEPENDENT OIL AND GAS COMPANY
PRODUCERS AND REFINERS
KENNEDY BUILDING
TULSA OKLA.